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Kearsley and Thornton: Early American Physicians and Architects

ARTHUR C. JACOBSON, M.D.

Brooklyn, N. Y.

"We the surface broad surveying, we the virgin soil upheaving,
Pioneers! O Pioneers!"
—Walt Whitman

In his charming little book, "Old New England Doorways," Mr. Albert G. Robinson makes the following remarks:

"Using the term in its modern sense, there were no professional architects in America in the seventeenth century, and few who may properly be classed as professionals in the first half of the eighteenth. In fact, most of the best work in architectural designing prior to the Revolution was done by men who may be regarded as amateurs, using the word as meaning those who cultivated and studied an art without practising it professionally."

Mr. Harold Donaldson Eberlein, in his "Architecture of Colonial America," says of the men happening to possess this culture that they "were willing to put aside their own professional vocations for a time in order to plan and superintend the erection of some public structure as a kind of public duty." It is easy to understand this attitude, for "America's early architecture expressed our delight in finding secure homes here in the wilderness."

Two outstanding figures of this type were Doctor John Kearsley, of Philadelphia, and Doctor William Thornton, of Washington, D. C., whom the writer has chosen as the subjects of this article.

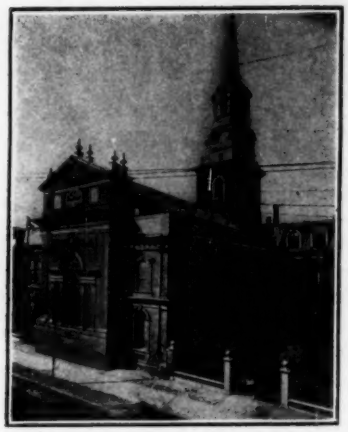
In addition to the cultural acquirements of many of the medical pioneers there appears to have been a very distinct recognition of their civic obligations in general. Thus we find such gifted men as Doctor Thomas Lloyd functioning as the first deputy-governor of the Colony of Pennsylvania and Doctor Thomas Wynne presiding over the first Assembly, while Doctor Edward Jones and Doctor Griffith Owen held positions of trust in the Colonial government. In New York we find Doctor Cadwallader Colden, a successful practitioner, acting as the real executive of the Colony for fifteen years. In those days there was nothing incongruous about the physician's participation in civil government or in any activity making for public betterment, but it is significant that only the best men seem to have been so drafted. Just now there seems to be a wholesome tendency toward a return to the ancient tradition.

"It is a commonplace," writes Ernest P. Boas, "that men who are great in their profession are great in their general interests and activities. This fact is brought out forcibly again and again in the life of one after another of the forerunners of modern medicine. It should serve as a lesson to the highly restricted specialists of the present day, that greatness in their particular field depends on the breadth of their general knowledge, and should suggest to patients a good way of evaluating the abilities of the doctors whom they are consulting." It is by the diversity and depth of his interests that a physician ought to be judged, instead of by the prevailing criteria.

In the spirit of this introduction it has seemed to the writer worth while to retrace the achievements of the two physicians and serious artists, Kearsley and Thornton, and to assay the spiritual and material heritage bequeathed to us by them—lest we forget.

Kearsley

John Kearsley was born in London in 1684 and emigrated to Pennsylvania in 1711. Liberally educated, talented and versatile, he soon became one of those remarkable Colonial leaders whose energy and capacity laid securely those foundations upon which was to arise the great Republic. Down nearly to the outbreak of the Revolution he was a leading figure in the Philadelphia profession, a very active practitioner, a pioneer medical teacher, a representative in the House of Assembly—in which he proved himself a formidable debater—and an architect of unexcelled powers in his day, despite the lack of formal training; he was an amateur in the last field, but not a dilettante.



CHRIST CHURCH, Philadelphia, Pa.
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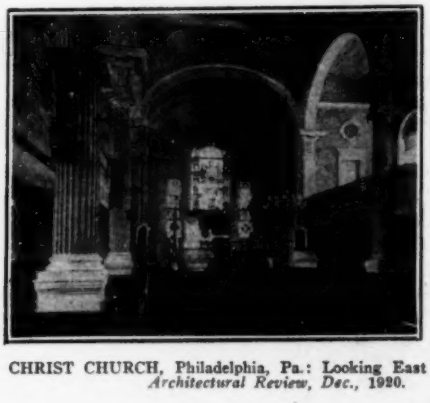
Kearsley was the pioneer medical educator in Pennsylvania, enrolling a number of students for a seven-year term of tutelage at a time when there was no organized agency whatever in the Province for the training of physicians. He had received the best medical training of his time and had made the best educational use of an exacting practice, so that he was well fitted to adopt a career as preceptor of a remarkable group of young men: Zachary, John Redman, Thomas Cadwalader, William Shippen, Thomas Bond, Phineas Bond, Cadwalader Evans, John Bard and John Kearsley (a nephew)—all names to conjure with in American medical history. His office has been called "the first American college," but this ignores the fact that Lambert Wilson and Giles Firmin were medical preceptors in Massachusetts almost a century before Kearsley. Nevertheless he sowed the most fruitful educational seed, for he and his students initiated those great Philadelphia and New York medical foundations that made these cities the medical centers of the continent.

John Kearsley Mitchell, father of Weir Mitchell, came of the same stock, as did the wife of the latter.

Kearsley published two papers, one a criticism of a method (Adam Thomson's) of preparing patients for inoculation against small-pox by the administration of mercury and antimony and by bleeding and purgation, which method, however, was universally adopted in the Colonies and to some extent in England; this paper also contained practical hints relating to the treatment of malaria, pneumonia and various fevers "incidetal to the Province." The other paper was entitled "The Case of M. T. L., with Regard to the Method Pursued therein by John Kearsley, Senior, Surgeon" (the "Senior" distinguished him from the nephew of the same name); no trace of this paper having been found its contents cannot be cited.



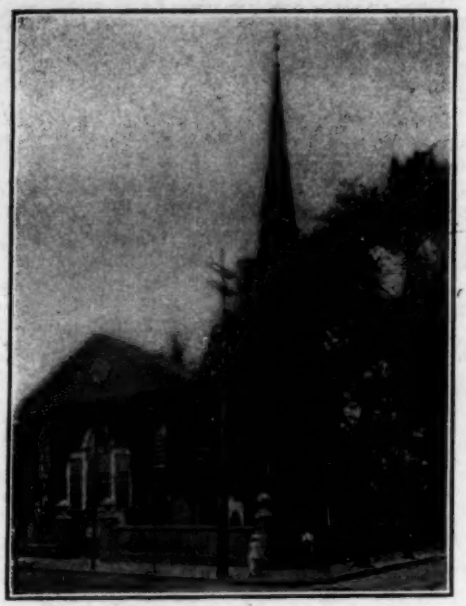
CHRIST CHURCH, Philadelphia, Pa.: Looking East
Architectural Review, Dec., 1920.

If Kearsley had done nothing more than influence medical teaching and the founding of great medical schools and hospitals his would still have been a notable career, but we have to add to this his public service in behalf of the liberties and material and spiritual interests of Pennsylvania, and, what particularly concerns us in this article, his part in the designing and building of a church which at the time of its erection, in point of elegance and taste, surpassed anything of the kind in the Colonies. This is saying a good deal, for there were in Kearsley's time some excellent examples of church architecture in the country. "Completeness of design, permanence of materials, and elaboration of detail considered, Christ Church is second to no other religious edifice of the eighteenth century in the Colonies" (*"Colonial Architecture,"* Wise and Beidleman).

Christ Church, Philadelphia, was erected in 1727. It is Georgian in type. Harold Donaldson Eberlein, writing of this church in the *Architectural Review* of December, 1920, remarks that "Both inside and out the proportions are of a breadth and dignity most satisfying to mind and eye, and although the church is of ample size it appears to be larger than it really is. Exterior and interior details alike are simple, but at the same time virile and impressive. . . . The conception and treatment throughout bear witness to a high order of architectural intelligence and good taste on the part of the designer, and betray none of the vagaries that sometimes mar the otherwise good work of an architect in his earlier flights." The same authority, in his "Architecture of Colonial America," declares that Christ Church stands for all that is best in church architecture of the Colonial period in America and that it is a peculiarly beautiful and graceful structure, well meriting all the praise that has been bestowed upon it. "In every respect the building is thoroughly representative of the best Georgian traditions." It was the wealthiest and most splendid church in the Colonies. The singular beauties of this edifice and all technical considerations will be found exhaustively set forth in the writings of Eberlein.

WEST END OF NAVE AND ORGAN GALLERY
Architectural Review, Dec., 1920.

Kearsley was a vestryman of Christ Church, the congregation of which included nearly every Philadelphian of prominence outside of the Society of Friends, for example, Benjamin Franklin, Robert Morris, Hamilton,



ST. PETER'S CHURCH, Philadelphia, Pa.
—"*The Architecture of Colonial America*," by Harold Donaldson Eberlein.

Doctor Benjamin Rush, Betsy Ross, the maker of our first national flag; the Colonial governors, the Penns, Cadwaladers, Baches, Bradfords, Coxes, Merediths, Shippens, Binneys, Chews, Willings, Hopkinsons, etc. It also included the first President of the United States, from 1790 to 1797.

In 1785 the Protestant Episcopal Church was here organized, its constitution framed and the liturgy revised, steps being also taken to secure the English episcopate for America. This was the first ecclesiastical council in the United States.

Since Kearsley was one of the committee appointed in 1758 to plan a chapel of ease to Christ Church, and since there is no intimation that any other architect was associated with the work, it has always been assumed that he was the designer of St. Peter's. "St. Peter's," says Eberlein, "is simpler in design and far less elaborate in detail than the mother church, but has, none the less, a very distinct charm of its own. . . . St. Peter's is still eloquently expressive of eighteenth-century ecclesiastical conditions."

Kearsley was one of a committee of three appointed in 1729 to plan and build a State House for Pennsylvania in which the Assembly, the Governor's Council and the Supreme Court could meet. It was erected in 1733 in Philadelphia according to the plan of Mr. Andrew Hamilton, a member of the committee, Doctor Kearsley's design having been rejected by the Legislature despite his "very positive ideas as to what the new State House should be." In this building, the eastern half of which is commonly known as "Independence Hall," the Declaration severing relations with the mother country was signed. Curiously enough, some writers (Watson's *Annals of Philadelphia* and Henry's *Standard History of the Medical Profession of Philadelphia*) have declared that the State House was Kearsley's work, or that he influenced its style considerably, but the author of this article can find no evidence that this was so.

One of the oldest institutions in Philadelphia is Christ Church Hospital, so called, founded and endowed by Doctor Kearsley for the support of poor widows.

A portrait of Kearsley appears in Middleton's paper in the *Annals of Medical History*, vol. 3, 1921, p. 391. He married Mrs. Margaret Brand November 24, 1748, and left no issue. His death occurred in January, 1772.

The thanks of the writer are due to Doctor J. Madison Taylor and to Mr. Horace Wells Sellers, F.A.I.A., for many of the data on Kearsley.

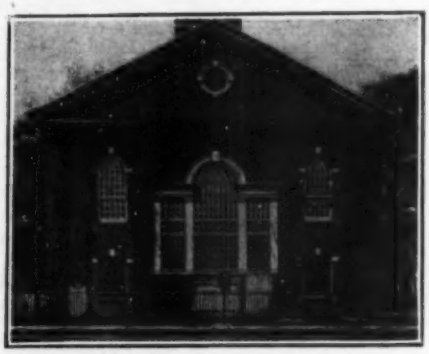
Thornton

William Thornton was one of the first pioneer architects in this country—and one of the ablest. His family, who were Quakers, emigrated from England to the island of Tortola, in the West Indies, in 1761, where Thornton was born on May 27 of the same year. Either his father or an uncle was governor of the island. We owe a considerable debt of gratitude to the islands which gave us the builder of the Capitol (Thornton) and the founder of our financial system (Alexander Hamilton).

At the age of five Thornton was sent to England to be educated. He studied medicine at Edinburgh (was graduated in 1784) and Paris and then traveled extensively on the Continent with Count Audriani, the naturalist, incidentally becoming acquainted with famous buildings. He came to the United States about 1787 and married a Miss Brodeau, of Philadelphia, in 1790. The Thorntons never had any children. For a time they lived in Tortola, where Thornton had an interest in the estate of his father, but in 1793 they took up their residence in Georgetown and in that year Thornton published his "Cadmus: or, A Treatise on the Elements of Written Language," a prize dissertation which was honored with the Magellanic gold medal by the American Philosophical Association. With Cadmus was also printed an "Essay on the Mode of Teaching the Surd or Deaf, and Consequently Dumb, to Speak." In the same year he submitted his plan for the Capitol, of which more anon.

The Cadmus is a notable attempt to simplify spelling upon a phonetic basis. It is a scholarly production and reveals a wide acquaintance with the structure of man's principal languages. The essay on teaching the deaf and dumb to speak was the first American publication upon lip-reading (Alexander Graham Bell: *Columbia Hist. Soc. Records*, Washington, D. C., 1917, v. 20, p. 225). This paper is a model one, in style and treatment thoroughly modern, authoritative and complete.

Thornton published many papers on other subpects, including medicine, astronomy, philosophy, finance, government and art. "He had a well-earned reputation for letters and taste; he was a wit, a painter, and a poet" (*Memoirs*, Benjamin Ogle Tayloe). Dunlap says that "He was a scholar and a gentleman, full of talent and eccentricity, a Quaker by profession, a painter, a poet, and well acquainted with the arts; his company was a



ST. PETER'S, Philadelphia, Pa.: East End.
Architectural Review, Dec., 1920.

complete antidote to dullness." In early life we find him interested in antiquarian research; he was elected a member of the Antiquarian Society of Scotland in 1782, endorsed by Sir John Dalrymple, Bart., and the Earl of Bucham. In 1784 he attended lectures at the Royal Academy and perfected his skill in draughtsmanship; he had displayed very early a talent for drawing and when a schoolboy in England did clever pen and ink work. As a mature artist he is known to have produced a painting of Jefferson and a miniature of Washington; also a portrait of the Countess of Beauharnais, an authoress in whose famous Parisian *salon* Thornton had figured conspicuously before his arrival in America. A beautiful example of his work as an artist is the miniature of his wife reproduced in Allen C. Clark's paper on Doctor and Mrs. Thornton (*Columbia Hist. Soc. Records,* 1915, v. 18, p. 144). He is also credited with several novels, of which, however, the writer has been unable to find any trace.

Thornton's "Outlines of a Constitution for United North and South Columbia" proposed a government for the two continents with the capitol ("the City of America") on the hills that intersect the Isthmus, or near Panama, *where a canal may be made from sea to sea, by locks."*

In his "Political Economy: Founded in Justice and Humanity," dedicated to James Madison, then Secretary of State, Thornton is revealed as a leader in the movement for the emancipation of the slaves. For twenty-five years—from 1789—before the American Colonization Society was formed, he had been active in this movement. At great personal expense he sent an agent to Africa to locate a colony. Thornton's plan was to ransom the slaves by employing them for varying periods of time, according to their ages, on public works and utilities of all kinds, such as bridges, canals and roads, and in the development of all natural resources, which he did not believe should be permitted to fall into the hands of privileged monopolists. Writing in 1804 he prophesied that in a hundred years the country would have attained a population of 100,000,000, and he feared for the welfare of the masses if industrial and economic exploitation were not curbed at the outset.

In the introduction to the "Outlines of a Constitution" Thornton proposed a national university which was to be the keystone in an arch of universal education, and when Washington himself conceived somewhat the same idea he found Thornton in sympathy with it.

Thornton was not an imperialist in the sense of conquest, but was much preoccupied with the idea of peaceful co-operation between nations founded upon a rational application of the basic principles of Christianity and economics.

A marked inventive genius was not the least of Thornton's endowments. He devised a process for conventing sawdust into planks which has been recently revived. He received patents for improvements in steamboats, steam boilers, and condensers. He invented a successful steam cannon, financed John Fitch's steamboat scheme, and when Fitch failed built an engine himself that drove the boat through the water at eight miles an hour; in the summer of 1790 she went eighty miles in one day, starting from Philadelphia. A larger boat tried by Fitch in 1791 failed because Thornton's advice was disregarded in the building of the engine. An interesting article on this phase of Thornton's activities is that of Gaillard Hunt (*Nation,* N. Y., 1914, v. 98, p. 602).

Thornton fought Fulton's claims vigorously. Fulton's first patent was not taken out until 1809 and he had seen Thornton's drawings in 1806. Thornton had been engaged to build steamboats for the Mississippi before 1790, a project which failed because of financial difficulties.

In a sense Thornton was the first to apply steam to navigation successfully, though he personally seems to have urged the priority of Fitch's ideas.

One index of Thornton's activities as an inventor is the fact that Fernando Fairfax paid him 2,000 pounds for a quarter interest in his patents and manufacturing companies; this was a big deal in those days.

Another of Thornton's activities was the breeding of race horses. He imported fine animals from England and Barbary. His account books show quite a number of blooded stock, each valued at more than $2,000. By horses and benevolences he lost large sums of money.

Because of his knowledge of mechanics, his inventive genius and his executive ability Thornton was wisely put in charge of patents in 1802 by Jefferson. He had charge of United States patents, as Commissioner or Superintendent, from the passage of the Act of Congress authorizing the organization of this office until his death in 1828. His written decisions on patent claims are as concise and luminous as those of any court or writer of legal texts. He was a kindly autocrat and did not hesitate to remit payment of fees in the case of impecunious inventors of merit or promise, no matter what Congress might think about it. During this period he also acted as a Justice of the Peace, a Commissioner of Bankruptcy, a Member of the Levy Court, and a Commissioner of the District of Columbia ("The Birth and Growth of the Patent Office," by George W. Evans, in *Columbia Hist. Soc. Records,* Washington, D. C., 1919, v. 22, p. 105).

When the British trained a gun on the Patent Office in 1814 Thornton placed himself in front of it and succeeded in persuading the enemy to spare the patent records, which he then proceeded to save by carrying them to his farm in the country. He also placed a guard at the Navy Yard and Capitol during the evacuation. During the War of 1812 he held the ranks of Lieutenant and Captain.

Thornton's public career was in close relationship with those of Washington, Madison, Jefferson, Randolph, L'Enfant, Adams, Hamilton and Fulton. He was intimate socially with the Tayloes, Carrolls, Stuarts and Van Nesses.

We come now to the main point of our sketch, Thornton's achievements as a sculptor. The distinguished architect Glenn Brown finds that his work compares favorably with the best of the period. The lectures that he attended in 1784 at the Royal Academy were presumably on architecture. J. H. B. Latrobe, who succeeded him as architect at the Capitol and adhered largely to his design in restoring the Capitol after its partial demolition by the British in the War of 1812, states that he studied architecture two weeks; Trumbull says that he studied three months; Adolf Cluss simply calls him an amateur. Glenn Brown remarks that his architectural education was apparently self-acquired; it has been stated that he enriched his architectural education by the study of books on the subject in the Philadelphia Library, of which he was a member and which he himself had designed. About all we can say is that he possessed a peculiarly versatile mind, that he revealed remarkable power in mastering the details of intricate subjects, and that he had an intuitive sense and an infallible taste as to the essentials of architecture. The characterization of genius is seemingly the justest and easiest way of accounting for the man and his works.

THE CAPITOL, Washington, D. C.
Copyright Detroit Photographic Co.

In 1789 Thornton's plan for the Philadelphia Library was accepted as the result of an open competition, and it was completed in 1790. The original building was on Fifth Street and was an excellent work, the destruction of which has been a great loss to those interested in our background of American architecture.

In 1792 Thornton submitted a design for the White House to the Commissioners of the District of Columbia, but James Hoban's plan had already been selected.

In 1793 Thornton submitted plans to the Commissioners for the proposed Capitol at Washington. These plans were approved by President Washington and their execution was begun under the superintendence of Stephen Hallet, a Frenchman who had also been a competitor, and James Hoban, architect of the White House. They worked, nominally under Thornton, until 1794, when the latter agreed to give his whole time to the project and was appointed a Commissioner of the District, in that capacity directing the work in person until 1802.

The first volume of Glenn Brown's "History of the United States Capitol" (1901) contains a full account of Thornton's work on this nobly conceived structure. Mr. Brown's "The United States Capitol in 1800" is also a valuable study of the subject (*Columbia Hist. Soc. Records*, v. 4, 1901, p. 128).

Glenn Brown remarks that there are three things which connect Thornton intimately with the history of the City of Washington and the country, and wherein the excellent character of his work places us under obligations to him: first, his artistic ability and skill in producing the best scheme for the Capitol; second, his general culture, breadth and capacity as one of the Commissioners of the District, which are shown in the execution of the magnificant ideas of Washington and L'Enfant as to streets, and his ideas as to buildings and grounds; and third, his mechanical knowledge and executive ability.

It is not to be forgotten that Thornton was not only the designer and builder of the Capitol but that he practically built the City of Washington.

Thornton was selected by Colonel John Tayloe of Virginia to plan the Octagon Mansion, completed in Washington in 1800. This structure is a very interesting type of Georgian or Adam design. It became the residence and executive office of President Madison (1814-15) when the British burned the White House. The treaty ending the War of 1812 was ratified by Madison in the Octagon. Since 1902 it has been owned by the American Institute of Architects and is the Institute's permanent headquarters. Before that it had been leased by the Institute several years. Glenn Brown has published very complete drawings and descriptions of this notable building (*"The Octagon,"* 1916, for the American Institute of Architects).

Thornton was President Washington's architect. He designed and built for Washington the building known as the Hotel Kenmore (in Washington). He planned Wood-Lawn, near Mount Vernon, for Washington's step-daughter, Nellie Custis (Mrs. Lawrence Lewis).

Montpelier, in Virginia, the country residence of President Madison, is another example of Thornton's work.

Thornton planned the Tudor House, in Georgetown (1810).

For Jefferson, the mace of the State of Virginia was designed by Thornton, and he also influenced Jefferson's plans for the buildings fo the University of Virginia.

Thornton designed a monument on a colossal scale as a memorial to Washington which was never built.

On March 28, 1828, Thornton breathed his last. His body was interred in the Congressional Cemetery, after being followed to the grave by the President of the United States and his cabinet, and the members of Congress.

In the room of the Commissioner of Patents, at Washington, hangs Gilbert Stuart's portrait of this gifted ornament of two professions.

115 Johnson St.

Cancer of the Prostate

In 241 patients with carcinoma of the prostate who were examined at the Mayo Clinic and not treated, H. C. Bumpus found the average duration of the disease to be thirty-two months from first symptoms to death; they lived an average of ten months following examination. In the surgical group the duration of the disease averaged fifty-seven months, and the patients lived an average of twenty-seven months after operation. In the radium group, because of recent treatments, such a comparison would obviously be misleading. However, it is interesting to note that the twenty-nine living patients treated by radium prior to January, 1921, average twenty-eight months of life after treatment, and that the average duration of their disease has been prolonged to fifty-eight months. These are approximately the same averages as those obtained in the surgical group. 17 per cent. of the patients treated with radium have lived more than two years after treatment, the period during which 92 per cent. of untreated patients died. It is also interesting to note that while there are over twice as many patients, treated surgically, alive at the end of each year as there are of those treated by radium, still there are twice as many of the latter alive as there are untreated patients.

The efficiency of surgery is best portrayed by the fact that after six years all untreated patients are dead, while 11 per cent. of the patients treated surgically are living, and at the end of nine years 9 per cent. are still alive. This shows that it is possible occasionally to remove all the malignant cells by conservative surgery. Radium is applicable to a greater percentage of cases than surgery, and in these will increase the duration of life. In a small percentage, results equal to those following surgery will be produced. A combination of the two methods would seem to be the procedure of choice.

In combining the two methods, radium should be used before surgery, minimal doses being given from as many points of entry as possible in order to insure complete radiation of the gland and thus render the cancer cells incapable of reproduction. Even if the cells are forced beyond the prostatic areas as a result of enucleation of the growth they will be incapable of multiplying. If sufficient doses of radium are given to be effective after the removal of the gland, there is danger of producing a vesicorectal fistula.

The author reaches these conclusions:

1. The results obtained thus far by radium in the treatment of cancer of the prostate are inferior to those obtained by surgery.

2. The new methods of radium application indicate that in the future the results of the two methods will be the same.

3. Partial prostatectomy in cases of carcinoma occasionally proves to be a curative rather than a palliative procedure.

4. A combination of radium and surgery offers the best results.—(*Surg., Gyn. & Obst.*, Aug., 1922.)

The Edgar Irritation Theory of Diabetes Mellitus and Its Rational Treatment

THOMAS WEBSTER EDGAR, M.D.
DIRECTOR, ENDOCRINE RESEARCH CLINICS
New York

The treatment of diabetes comprises two principal objects, viz, to maintain the strength of the patient by adequate nutrition and to increase his toleration for carbohydrates.

The importance of providing adequate nutrition is evident in view of the emaciation which is almost invariably associated with the disease. We have however to decide whether the emaciation and the consequent dibility are the direct result of digestive disturbances, or are present merely as complications, or whether they are due to inappropriate dietary. In other words does a diabetic necessarily lose flesh when he is given a sufficient quantity of nourishing food: that is to say in quantities corresponding to the requirements of the normal healthy individual. The observations of Mering, Voit and Noorden seem to show that this is not the case. Weintraud and Pautz state that a person suffering from diabetes can subsist on a diet not exceeding that of a healthy individual. One of Weintraud's patients was given a diet corresponding to twenty-five calories per kilo-gram per day not only maintaining his weight but actually put on six and five tenths kilograms. This observation seems to justify the conclusion that a diabetic patient in reality requires a smaller number of calories than a healthy person.

Some time ago I arrived at this identical conclusion by observing patients placed on a vegetable diet. It is a case of self protection of the organism, which adjusts itself to a smaller quantity of food, when the conditions of nourishment are favorable an analogy is to be found in the behavior of a starving organism. The difficulties and the degree of this adjustment vary with each individual case. Special difficulties present themselves when unfavorable conditions of nutrition suddenly supervene, as in acute cases. On account of irrational dieting, especially in the direction of overfeeding, this endeavor on the part of the organism may be frustrated, where as on the contrary, a careful regulation of the quantity of the food promotes a salutary reaction. In every diabetic diet I hold it to be most necessary that the nourishing condition for each patient be tested, and that the minimum quantity should be ascertained on which the patient can exist, and that the organism should become accustomed to this reduction of quantity.

Very little attention has hitherto been directed to this factor in diabetic thereupeutics, and dieting from a quantative point of view has merely been regulated in accordance with the general principles of the theory of calories: the number of calories required being calculated from the body weight. The slow adaptation of the system to a reduced diet follows exactly the same law, whatever the reason for the reduction of food may be. It is a well recognized fact that the system can be trained to exist on small quantities of food. From this point of view the experience of the Japanese physicians is especially interesting. They teach that with a fixed diet (a vegetable diet) the natives are satisfied with a remarkably small number of heat producing foods, in spite of which their capacity for work remains undiminished.

I have always maintained that a dietetic patient on a vegetable diet, the number of calories being far below the average can exist a long time, and even put on weight. The vegetable regimen provides a diet on which the subject can maintain his usual weight on the minimum number of calories, especially if there be no necessity for him to work.

These conclusions do not apply only to diabetic thereupeutics, but to all similar conditions, insomuch as they show that the quality of the food is of great importance in its bearing on metabolic assimilation in each indivdual case. It is however of especial interest in the treatment of diabetes since we require to reduce the quantity of food without causing inanition. The suitability of a smaller diet for diabetic patients was known to Bouchardat, whose maxim for this class of patient was "mangex le moins possible." As has already been pointed out, the ideal to be aimed at in the diet is to find out the minimum on which the organism can exist without the loss of weight.

This theory is based on the consideration of the absorptive processes taking place in diabetes. Most authors state that in diabetes there is a diminuition in the absorption of sugar. The manifest increase of urinary sugar following the absorption of carbohydrates affords the main argument in support of this theory. A large number of facts can however be cited, which cannot be explained by this theory. Many diabetic subjects, for example, who are able to digest a small quantity of carbohydrate if fed on albumen manifest an increase of urinary sugar. The fact that glycosuria is influenced by the ingestion of albumen suggests another theory on diabetic metabolism, viz, that diabetic glycosuria is brought about by an increased formation of sugar from the tissues. We know that carbohydrate and albumen in the body form highly complex compounds, and that under certain circumstances the component parts thereof become separated. If carbohydrates are liberated it is unnecessary for the nitrogenous substances, after the breaking up of the sugar, to be resolved into their constituents, but may be retained in the body in one form or other. From this it will be seen that sugar can be built up in the system from nitrogenous substances without causing any increase of nitrogen in the urine. Therefore the quantity of nitrogen in the urine cannot be taken as an idex of the amout of nitrogen containing substances employed in sugar formation.

Edgar communicated this theory two years ago. It was later accepted by Umber and Pavy. The latter regards the carbohydrates existing in the protoplasmic molecule as side chains which can more easily be attacked than the nucleus of nitrogen. This view of Pavy helps one understand the process in question. Pavy and Kolisch express the idea by saying that the breaking up of the side chains has no influence on the separation of nitrogen. Only when all the side chains are broken up and the nucleus is beginning to be decomposed can a relationship exist between the sugar and the nitrogen in the urine. My personal opinion is that even then by retention of nitrogen this relationship can be altered to the disadvantage of the nitrogen.

If the separation of the carbohydrate group from the protoplasmic, molecule, which unquestionably represents a process existing in the normal organism, is increased

through some influence—a poison, for instance—we speak of an increased formation or breaking up of sugar molecules when the quantity of nitrogen in the urine remains unaltered. If this increased formation continues, as in diabetes it will impoverish the system in respect to carbon.

This separation of sugar will last so long as sugar forming compounds are present in the body, and will vary in extent according to the intensity of the irritation by which it is produced. In this way an explanation is afforded a number of facts in the pathology of diabetes which was impossible by the theory of disturbance of sugar formation. It is a fact that in several cases of diabetes observed shortly before death the glycosuria diminished. If we assume that glycosuria is produced only as the result of a reduction of the power of breaking up the sugar, this fact is incapable of explanation. It is impossible to accept the theory that at the climax of the disease the power of assimilation of sugar has been improved. It is, on the contrary, quite easy to understand that the store of carbohydrates in the body has been exhausted, and that no formation of sugar is possible. The fact that in diabetes at this stage, in which the glycosuria has disappeared the ingestion of sugar no longer produces any increase in the urinary sugar is now also explained. We can imagine that the carbohydrates taken with the food will be used in the first place to supply the deficiency of carbon. Therefore in coma the possibility of an intravenous infusion of sugar appears worthy of consideration. In favor of the adoption of the theory of separation of sugar by irritation, the frequent appearance of spontaneous fluctuation of glycosuria may be adduced. We frequently notice that with a practically uniform diet a sudden increase of glycosuria to the extent of one or two per cent, which disappears as suddenly as it came. These oscillations cannot be explained on the theory of the impaired absorption of sugar.

The irritation theory is partly confirmed by the reduction of the diabetic glycosuria which follows the administraton of opium. It is not to be supposed that opium causes a strengthening of the function of the cells which has been disturbed by the assimilation of sugar, whereas sedative action of opium on an irritative process can readily be grasped.

Moreover, against the theory of the disturbed assimilation of sugar are certain chemical theories. In E. Fischer's works on the subject it is clearly stated that the assimilation of a substance by the cells depends on the similar configuration existing between the molecules. These statements do not apply merely to enzymes and one celled organisms, but also to the cellular structure of the animal body. *The value of carbohydrates in the body is governed by these chemical laws, the greater or smaller usefulness of the various carbohydrates in the system is in direct proportion to the existence of analogous chemical groups in the protoplasm, which according to Fischer fit as the key to the lock.* Therefore all alterations in the toleration for carbohydrates must be associated with an alteration in the chemical composition of the protoplasm, otherwise the case in which there is a sudden appearance of glycosuria are incapable of explanation, as, for example, the experimental cases. On the other hand, they are easily understood if we admit the "irritation theory," which assumes the existence of copious sugar formation at the expense of the tissues.

The most powerful arguments in favor of the theory of a disturbed assimilation of sugar in diabetes, is the continuance of the diabetic glycosuria on a diet of carbohydrate: in many cases the whole of the sugar ingested appears in the urine. This direct quantative relationship between the sugar ingested in, and that appearing in the urine is however not the rule.

Trustworthy observations teach us that in cases in which the so-called toleration limit for sugar has been fixed, that not all the sugar which is in excess of this limit is excreted. (Klutz and Mering).

Klutz, for instance, gives the following:

Excretion in the urine
Intake 30 grm's of dextrose 4 grs.
Intake 50 grm's of dextrose 5 grs. (not 4 plus 20)
Intake 90 grm's of dextrose 13 grs. (4 plus 60)

Personally I could give numerous examples in which apparently, by increasing the intake of carbohydrates, the toleration is increased, as for example, when an intake of 50 grs. i.e., a 20 per cent, while with an intake of 100 grms. of carbohydrate, still only 10 grams. is eccreted, eg, 10 per cent. In many diabetics the proportion of urinary sugar remains constant in spite of variations in the amount of carbohydrate ingested at any rate, within certain limits.

Naunyn describes the case as paradoxical glycosuria. *When, on the other hand, after a long period of abstention from carbohydrates they are better borne, we must not, as is usually the case, jump to the conclusion that by deprivation of carbohydrates the function of the assimilation of sugar is spared and therefore strengthened.* If we remember that the assimilation of sugar is a purely chemical process depending on the existence of certain chemical constituents of the protoplasmic molecule such a theory will be seen to be untenable. These considerations suggest that the behavior of diabetics may be explained by the fact of suppression of carbohydrates: that is to say, that a diminuition of the intake of carbohydrate diminishes the material from which the sugar is derived. I wish to insist on these data as affordng a most important therapeutic indication, viz., to allow diabetic patients as much carbohydrate as they can bear, taking into account the glycosuria otherwise the system soon becomes deficient in carbon.

It must be clearly understood, that both the quality and quantity of the carbohydrate have an important bearing in determining the maximum amount of carbohydrate that can be taken, as will be clear from the influence of albumen on the glycosuria. That diabetic glycosuria is increased by the ingestion of albumen has been proved by Bouchardt, Pavy and Cantani. The discovery of Pavy of complex carbohydrate compounds in the molecule of albumen originated the idea that this performed carbohydrate molecule is the source of the glycosuria, after a meal rich in albumen. This theory gained additional plausibility by the researches of Schondorff, who succeeded in showing that only those molecules of albumen from glycogen in the animal body which contain ready formed carbohydrate molecules. Schondorff fed his animal on casein, an albuminous substance from which up to the present no ready formed carbohydrate has been isolated, and he found no increase in the glycogen. The accuracy of Schondorff's conclusions has not, however, been demonstrated, and they have been called in question by Bendex, Cremer, and Cohn, who assert that under suitable conditions the casein can yield the material for the formation of a large amount of glycogen.

That it cannot be the ready formed sugar which, in diabetes leads to an increase of glycosuria on the ingestion of albumen has been demonstrated in the older writings of Kulz who proved that casein can cause a marked increase in the glycosuria. The latest chemical researches on the nature of the albuminous sugars negative the opinion that the preformed sugar is the source of the increased glycosuria.

The works of Muller, Neuberg, Blumenthal, and Mayer and especially those of Langstein, show without the shadow of a doubt that the sugar in albumen is identical with that of chitosamin. According to the researches of Fabian, Offer and Frankel, chitosamin is not an intermediate form of glycogen, so it cannot be the source of the increased formation of dextrose. The chief argument against the formation of carbohydrate in diabetes from the preformed carbohydrate in albumen molecules lies in their quantative relationship. According to Kossell, at least 80 per cent of the carbon in albumen exists in the form of hexonbases and amido acids, so that at the most only 20 per cent can exist as preformed sugar. As a matter of fact, up to the present only 10 per cent has been separated.

It follows therefore that the sugar must be synthetically formed from the albumen.

The quantative relation between the albumen and the sugarformed therefrom in the organism has not yet been definitely settled. There seem to be the widest variations from a quantative point of view between the various albuminous bodies, and also between the normal and diabetic organisms.

Many facts may tend to produce diabetic glycosuria after the ingestion of albumen. Albumen is the nutritive base which is the starting point of organic oxidative processes, as albumen is most nearly related to the protoplasm of the tissues. Albumen moreover, exerts the greatest stimulation to nutrition. The ingested albumen will be decomposed as supplied without regard to the necessity therefor. The decomposition, however, is preceeded by the entrance of the albumen molecule into the cell protoplasm, or at least an intimate contact between the nutrient albumen and the protoplasm must be brought about. In this way a greater attraction is exerted on the protoplasm. This attraction can split up the protoplasmic molecule, which consists of albumen, carbohydrate, fat, salts, etc., and in this way, with a food consisting of albumen, the formation of sugar by the breaking down of the protoplasm can take place. At the same time the disintegrated albumen is the source of the material from which sugar is synthetically built up, and to such a degree that theoretically, after deduction of the carbon excreted in the urine, 1 gram of nitrogen is equivalent to 8 grams of sugar.

From the researches of phlorizin diabetes and pancretic diabetes much smaller values were found, viz., 1 :2, 8 (Minkowski), 1 :3, 2 (Muller, 1 :4, 2 (Lusk and Halsey).

In the experimental results it is always assumed that the total amount of sugar present in the urine is formed exclusively from the albumen, the index of which represents the amount of nitrogen excreted in the urine.

In this connection it has not been taken into consideration that sugar may also have been separated from the higher forms of proteids, whose nitrogen is being retained within the body. Now and then in some cases the above figures are exceeded, and a larger quantity of sugar appears in the urine, more sometimes than the proportion corresponding to 1.8. Some authors admit a sugar formation from fat. (Noorden, Rumpf, Rosenquit, Mohr.)

In this theory I challenge the values ascribed to the nitrogen as being disproportionate to the amount of decomposed albumen, as well as the view that nitrogen is readily retained. The latest researches of Lowi, Hirschfeld, militate greatly, on quite other grounds, against the theory of the formation of sugar from fat. Hirschfeld, found that, for example, that in the phlorizinished animal glycosuria is reduced considerably if the supply of albumen is diminished and the decomposition of fat increased. Lowi has proved the retention of nitrogen in phlorizin glycosuria. The fact, moreover, that excess of sugar secretion beyond the theoretical possible quantity (from albumen) is only met with in the most severe cases, shortly before death, renders it possible that in these cases nitrogen is retained in the system. These facts can be explained if the sugar is split off from the albumen as I have suggested. The formation of sugar such as I have already insisted upon, must lead to a deficiency in the amount of carbon in the body, and therefore in extreme cases, when compensation is not possible, it must lead to a dissolution of the organism. It is remarkable, and the fact is also of great importance in dietetic thereupeutics, that the various albuminous bodies behave in different ways on diabetic glycosuria. From this point of view I may recall the fact discovered by me that the vegetable albumen has not nearly as marked an effect in increasing diabetic glycosuria as that produced by animal albumen. A study of the different animal albumens reveals many facts which tend to show that great differences exist between their respective behavior.

Luthje found a marked increase in the glycosuria when patients are fed casein and pancreatic substances, and a less marked increase in the amount on feeding on albumen and thymus. Sandmeyer observed the increase only on giving raw pancreas, and when this was cooked it was absent. This is explained by the ferment action of the pancreas and better digestion of the food. Halsey in phlorizin animals observed a different behavior to that of Luthje and myself in that he noticed a greater increase after albumen. Ranci and Reale found the glycosuria to be more marked with nuclein. The negative behavior of thymus, as explained by Luthje, is incomprehensible. These contradictory statements make is possible that the different albuminous bodies supply the material for the synthetical formation of sugar, but that they are not all of the same value in their bearing on diabetic glycosuria.

From this point of view the irritative action which has been repeatedly referred to upon the protoplasm plays an important part, since, according to the qualities of the albuminous bodies, so the sugar production varies in intensity.

From what precedes it is logical to assume the following: (1) that the individual treatment of diabetes has not only to first discover, as has hitherto been done, the so-called toleration capacity for carbohydrates, but the dieting requirements of the organism and the minimum of nutriment on which the patient can exist. If the feasible demand for food should gradually be reduced; (2) the toleration capacity for carbohydrate really depends upon the composition of the food which is given apart from carbohydrates and therefore such food is to be selected as contains the maximum of carbohydrate that can be tolerated. In this direction it is advisable to limit the quantity of albumen to that absolutely necessary; (3) a vegetable diet agrees with diabetes better than any other, inasmuch as it contains the minimum number of calories, the minimum of albumen and the maximum of carbohydrates; (4) the proportion of fat must be determined in accordance with general dietetic requirements.

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My Appendicitis Mistakes

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New York

Since the beginning of appendicitis work in our profession, I have enjoyed the privilege of observing all of the evolutionary changes to date.

In the early eighties surgeons merely opened the abscesses of acute appendicitis. There was still general fear of the peritoneum and there was considerable literature devoted to methods for opening appendicitis abscesses without opening the peritoneal cavity. It was customary to apply local applications and not operate until pus had appeared. When the classical paper of Dr. Fitz appeared in 1886 we all began to plan for the removal of infected appendices as soon as the diagnosis had been made.

At that time methods of the third or pathologic era in surgery were getting well under way. Surgeons were impressed with the idea that bacteria and their products must be destroyed by actual germicides. The protective forces of the individual were not taken into consideration very seriously. The surgeon was supposed to take the place of nature and this he did in an attitude of superiority over nature.

My mistakes at this time consisted in falling in line with accepted methods of procedure. Large incisions were made conscientiously in the idea of getting all of the pathology of the case in sight. I employed germicidal solutions for flushing out septic by-products of bacterial action and employed shock-producing procedures for the separation of adhesions, removal of adherent coagula and sometimes of thickened, discolored portions of ragged omentum. Gauze pads were employed for preventing purulent material from getting upon uninfected peritoneum during the course of operative work. After the operation extensive drainage methods were employed sometimes including the open packing of wounds with iodoform gauze.

Furthermore, acting with a feeling of security given by newer methods of anesthesia, I operated without particular thought of speed and in fact felt that thoroughness in application of detail stood first in importance. Every single one of these steps had a special death rate of its own, as we have now come to know in our appreciation of the principles of the fourth or physiolgoic era of surgery in which the surgeon is to turn the patient over to his own natural resources in the simplest and quickest way that is feasible in any given case. The long incision which I made for the purpose of obtaining a view of all of the pathology in the case gave me a view of a field full of wrong impressions. The old fashioned practioner who refused to have his appendicitis patients operated upon because he wore blinders which prevented him from seeing all of this pathology had about as good results as many of us had with our early operative work. A famous Chicago surgeon at that time reported upon a list of fourteen consecutive deaths following operation upon acute appendicitis patients. He expressed the opinion that operation should not be done excepting in the interval stage. The application of actual germicides did not have quite so direct a death rate of its own, but it meant the injury of normal protective cells which were destroyed along with the bacteria. The application of extensive drainage devices and of gauze packing caused shock which could not have been borne by some of the patients if they had had no appendicitis at all. Later I described this as committing taxidermy upon appendicitis patients. Surgeons sometimes had to give a patient an anaesthetic in order to remove the gauze packing that had become adherent to various structures within the abdomen. When iodoform gauze was used the symptoms of iodoform poisoning were so much like those of general sepsis that patients sometimes failed day by day from iodoform poisoning mistaken for unavoidable sepsis. Wounds packed openly were practically certain to give us hernias later, requiring subsequent operation. Insistence upon separation of adhesions for the purpose of removal of infected or gangrenous appendices was all wrong. It had its own death rate belonging to the shock of a procedure that was ill timed unless such appendices were right at hand and could be removed without much manipulation.

The mistake of employing gauze pads for preventing the spreading of purulent material to uninfected peritoneum lay in a wrong conception of the great normal response to infection which patients really call out in the vicinity of an infected area.

Little by little the significance of various mistakes appeared. At the present time I operate as deftly and rapidly as possible through short incisions, employing the simplest of drainage devices and taking no pains to remove all of the pus, infected material, or "difficult" appendices.

During the third surgical era part of my work the death rate due to technical mistakes was large, but after moving up to the principles of the fourth or physiologic era it became possible to have a run of more than fifty consecutive operations in cases of acute appendicitis with various complications without having a single death and with almost no post operative hernias.

The Ochsner starvation method of treatment of acute appendicitis which brought such a storm of disapproval and misconception at the time of its promulgation was really based upon principles belonging to advanced method of the fourth era of surgery. My latest operative methods with discarding of so many mistakes of the past seem to mean little more than an extension of the Ochsner idea carried beyond the point of approval on the part of that author himself.

In the early history of the subject I made a good many mistakes relating to chronic appendicitis. Sometimes at operation an appendix which was the seat of chronic infection was found. These patients usually gave a history of previous acute attacks of different degrees of severity. Sometimes there was no appendicitis at all and I found tubal disease, pelvic adhesions or conditions belonging to so-called vagotonia. Operations in the latter class of cases were particularly wrong.

Once in a while I found a case of tuberculosis of the appendix or of the bowel in the vicinity, or the less common diverticulitis. More often in cases which were diagnosticated as chronic appendicitis fibroid degeneration was found. Lymphoid congestion or a simple congestive condition belonging to enteroptosis was found in many patients of the neurasthenic group. The first one of these conditions, fibroid degeneration I later came to believe represented a normal involution process. It had been a mistake to advise these patients that they were in danger from an acute attack. It is quite true that digestive disturbances were sometimes dependent upon irritation of the innervation of the gastro enteric tract as the result of pinching of nerve filaments in fibroid appendices, during the normal course of connec-

(Concluded on page 52)

*Read at the meeting of the Southern Surgical Association, Dec. 12, 1922.

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The mistake of employing gauze pads for preventing the spreading of purulent material to uninfected peritoneum lay in a wrong conception of the great normal response to infection which patients really call out in the vicinity of an infected area.

Little by little the significance of various mistakes appeared. At the present time I operate as deftly and rapidly as possible through short incisions, employing the simplest of drainage devices and taking no pains to remove all of the pus, infected material, or "difficult" appendices.

During the third surgical era part of my work the death rate due to technical mistakes was large, but after moving up to the principles of the fourth or physiologic era it became possible to have a run of more than fifty consecutive operations in cases of acute appendicitis with various complications without having a single death and with almost no post operative hernias.

The Ochsner starvation method of treatment of acute appendicitis which brought such a storm of disapproval and misconception at the time of its promulgation was really based upon principles belonging to advanced method of the fourth era of surgery. My latest operative methods with discarding of so many mistakes of the past seem to mean little more than an extension of the Ochsner idea carried beyond the point of approval on the part of that author himself.

In the early history of the subject I made a good many mistakes relating to chronic appendicitis. Sometimes at operation an appendix which was the seat of chronic infection was found. These patients usually gave a history of previous acute attacks of different degrees of severity. Sometimes there was no appendicitis at all and I found tubal disease, pelvic adhesions or conditions belonging to so-called vagotonia. Operations in the latter class of cases were particularly wrong.

Once in a while I found a case of tuberculosis of the appendix or of the bowel in the vicinity, or the less common diverticulitis. More often in cases which were diagnosticated as chronic appendicitis fibroid degeneration was found. Lymphoid congestion or a simple congestive condition belonging to enteroptosis was found in many patients of the neurasthenic group. The first one of these conditions, fibroid degeneration I later came to believe represented a normal involution process. It had been a mistake to advise these patients that they were in danger from an acute attack. It is quite true that digestive disturbances were sometimes dependent upon irritation of the innervation of the gastro enteric tract as the result of pinching of nerve filaments in fibroid appendices, during the normal course of connec-

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*Read at the meeting of the Southern Surgical Association, Dec. 13, 1922.

The Phosphatic Index As An Aid in Diagnosis*

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Buffalo, New York

In every day life, when anything goes wrong, and especially with the movement of machinery and the like, the operative's first impulse is to ascertain the cause, and remove it if possible.

The human being is merely a machine, or it might be more properly likened unto a great chemical laboratory. During the twenty-four hours of each day, while life lasts, there is no let up; every organ must function and as near to a normal state as it is possible to have them do.

But further than the normal functioning of all organs, we find that the human machine is constantly changing; indeed, scientists tell us that there is a complete change every seven years; at the end of seven years not an original cell remains.

Explanation seems unnecessary further than to say that constant destruction necessitates constant reconstruction, if life and normal action is to be continued.

Let us look at the subject again from the standpoint of outside occurrences. We know that for the propulsion of machinery, in fact, everything that moves, necessitates power or energy that is either naturally supplied or created artificially.

For this purpose food is necessary—such as coal, water, gas or other substances that, by combustion, create energy.

The very same process of deduction can be applied to the human being. For the continuance of life, food must be supplied, and by a process of digestion, assimilation and metabolism is converted into energy for the proper propulsion of all organs, but this food goes one step further, it replenishes the constant destruction that is continually going on.

The Phosphatic Index As An Aid in Diagnosis

Sufficient food containing the different elements necessary for the upbuild of the human body is taken by the mouth every twenty-four hours, and, if action is normal, it is converted into the different elements—hemoglobin for the blood, calcium for the bones, protein for the muscles, and lecithin, nuclein and phosphorus for the nervous system, although the latter is a very important constituent of every cell.

As we find machinery propelled by power, we find digestion, in fact, all the functions maintained by a similar force—power, and power that is derived from but one source: the nerve cells, which, collectively speaking, go to make up the brain and nervous system.

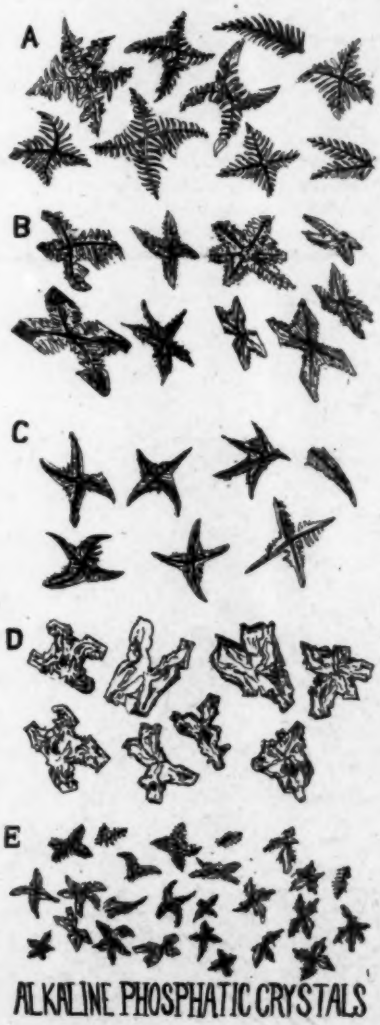
But the nerve cells in their effort to maintain life go a step further than do other systems, as to nutrition. Night and day, sick or well, food or no food being taken, organs must function, therefore in contradistinction to other structures, the nerve cells absorb an excess; they create a reserve, so to speak, for times of emergency, when from illness or otherwise, food cannot be taken in sufficient quantities to supply the demand.

This is well verified in the work by Prof. Shaw on Nervous Diseases. When speaking of neurasthenia, he says, "This inherited (we know now that neurasthenia is more often acquired) state of the system is due to some defect in the power of the neurones whereby they are unable to receive and store sufficient nutrition to furnish the normal calls with energy."

Following the course of food taken by the stomach, we find it digested, assimilated and converted into phosphorus, lecithin and nuclein, being distributed to all cells, but especially those of the brain, where it acts as a food for the cells. After the utilization of any substance, we always find a residue remaining, and in the case of the above mentioned we find this in the urine in the form of phosphates, or what might be termed end products.

Two kinds of phosphates appear in the urine, the earthy, consisting of calcium and magnesium, appearing in freshly passed urine, or may appear on boiling; on the microscope slide they resemble fine sawdust; urine containing earthy phosphates becomes clear on the addition of an acid. This variety of phosphates have practically no clinical significance, and unless present in sufficient quantities to cause marked opacity, when they should be filtered out, they may be dropped from further consideration.

The alkaline variety, or those that show nerve metabolism, are never observed in the urine under any circumstances, unless precipitated by an alkaline solution.* This variety consists of sodium and potassium phosphate, they appear in the urine as crystals, and if normal resemble the fern leaf.



ALKALINE PHOSPHATIC CRYSTALS

*Read by invitation before the Genesee County Medical Society, Batavia, N. Y.

A.—Normal crystals. Note well formed fronds and density. No matter what may be the symptomatology present, if tre Index registers NP (Phosphatometer), the nervous system may be eliminated as a cause.

B.—Note saw like appearance of fronds, and lightness of texture in make-up of crystals. This form show a want of nourishment in the nerve-cells, the same as the red cells may show a want of homoglobin. They are always present in cases where resolution is slow, where there is a want of resisting power; most cases where obscurity exit and in at least 75 percent of all cases of indefinite pain.

C.—(Year book 1896). Pregnancy from the end of the third week to the beginning of the fourth month. Fronds disappear at times leaving only stems.

D.—Amorphous, have practically no resemblance to A or B. The practically continuous appearance of this form of crystals, in the absence of morphine, cocaine, tobacco or alcohol during the previous 24 hours, is indicative of present or oncoming degeneration of the neurones. (The writer has found these 12 times, 8 died insane in from 2 months to 2 years.)

E.—Very small, indicative of great mental excitement, as in hysteria; they are practicaly always present in high blood pressure. In the later condition, pressure will rapidly fall by the use of a sedative, as bromarsarum, ten drops in water increased one drop a day to 18 or 20.

The function of the brain and nervous system is to produce power for the different organs,* resistence in the tissues. It is from the brain that every action, thought, word or deed arises. With such a function, it must be admitted that life itself depends upon the brain and its various ramifications, known as nerves, that to have normal action in organs, resistance in tissues and the various actions of the mind manifest along similar lines, the nerve cells that go to make up the brain and nervous system must be constantly supplied by its specific nutriment, and that this be used in as normal a manner as possible, that the reserve may not become depleted.

There is no doubt but there is some cause for everything abnormal that occurs, and especially is this so regarding the human subject. During the last few years, medical men realizing that the removing of such a condition is the keynote to successful treatment of disease, have brought forth the teeth, the tonsils, sinuses, internal vistera, ptoses and various other parts of the anatomy as the seat of trouble, of course, each locating it in their special chosen field.

But we know that to a great extent the foregoing as cause producing localities has dismally failed. Day after day we see patients that have had teeth extracted, sinuses opened, tonsils removed and operations on internal viscera performed only to find themselves in practically the same condition, if not worse than they were before.

It is hard to dodge the truth, it is becoming more apparent to us every day; the teeth, tonsils, etc., are not the hidden basis of supplies from which infection originated, that to some writers are the source of all human ills, no matter where situated.

It might be more truthful to state that infection is the cause in only a very infinitesimal number of the cases at whose door it (infection) is given as such, and surgical operations recommended for relief.

The cardinal symptom complained of in fully 75 per cent of the cases that seek advice from the physician is pain. This is followed along by excessive secretion from some part, the nose, for instance (catarrhal), in the female leucorrhea, accompanied as it is by distressing backache; various conditions involving digestion, either stomach or intestinal, these being always accompanied by more or less flatulence.

Of course, they feel badly and in the great majority of cases will remark how fatigued they are, that they are always tired.

The above train of symptoms are not due to local foci of infection, but to some interference with the system that supplies energy to the different organs that they may perform their normal function and to the tissues that they may also function properly.

All pain originates from the brain, and its location at any given point is simply a reflex manifestation. Pain is due to injury, disease, pressure, some interference with the normal supply of nutrition, or the excessive use of the same. Where there is no fairly clear pathological condition present, and even in this case, when it is removed, and pain still continues, the nutrition of the nerve cells should be looked to at once; nerves cannot speak, their word for hunger or irritation is pain, and fully 75 per cent of pain is due to some trouble in these cells.

The method of ascertaining the Phosphatic Index is very simple and can be quickly carried out by anyone in a few minutes. The urine to be examined should be the second passed in the morning, and clear, if it is possible to obtain such. The ingestion of large amounts of fluids, which will dilute it, or high fever and certain conditions that may increase it, must be taken into consideration to some degree and another sample taken if necessary.

Fill the phosphatometer to U, add solution to S, shake thoroughly and set aside for ten minutes. A whitish precipitate should form at once which will sink to the bottom according to the specific gravity of the crystals. If it is in a practically solid mass at N.P. in ten minutes, no matter what be the condition under observation, the nervous system as a cause is not a factor in the case, and another cause should be sought for.

When it does not sink, but is light and fluffy throughout the solution, or if it goes below N.P., it may be considered as minus; the crystals will practically always show a want of nutrition in keeping with the amount of precipitate present.

In this condition, and it will be a condition that will account for at least 60 per cent of all cases of illness, where results do not follow appropriate methods of therapy; and in practically all caess where resolution is impeded in either flesh or bone, but very little if any improvement can be looked for until nerve cell nutrition is supplied and the index brought to normal.

When the precipitate remains in a practically solid condition above N.P. it is considered as plus; there is an increased metabolism going on, and if allowed to continue sooner or later the reserve will become depleted and a minus index will be evident. In this condition sedatives are required; the bromid of sodium and elix. val. of ammonia, if acute, the bromid of gold and arsenic if chronic, as is so often observed in high blood pressure.

Summing up the above, the following conclusions seem rational:

Fully 80 per cent of the illness of the American public today is ambulatory in nature, and in at least 75 per cent of the cases there is no underlying pathological cause that can be elicited by questioning or physical examination, in other words they are known as functional.

There is no question, every action, thought, word or deed eminates from the mind or brain, of which the former is a part. The average life of the great majority of the people of today is far above what might be considered as normal, thus it is only reasonable to assume that in the extra calls for energy, increased brain action is necessary.

Increased brain action, as increased action of any other structure, calls for an increase in fuel or nutrition to meet the demand.

When the normal amount furnished by nature is insufficient, the reserve must be called upon; if this is continued for any time depletion will surely take place, with a resultant neurasthenia.

One other very important factor must be given consideration. Every particle of food consumed is digested and prepared for assimilation by power furnished by the brain. If the brain cells are not normally supplied with

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*Mag. Sulph., Ammo. Chlor. Aq. Ammo. (10%) of each an ounce, water 8 ounces. Mix, let stand r couple of days and filter; cover while filtering.

Better Eyes Make Better School Children

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New York

Quite often mothers and fathers who bring children to me for defective sight ask me why apparently so many more children need glasses in these days than in the days of our forefathers. It is true that more children are wearing glasses now than twenty or thirty years ago and certainly many more than a longer distance in the past.

The reasons for this are many, but the main one is that we are all using our eyes a great deal more intensively now than in the days of our forefathers. For instance, nearly everybody now reads at least two or three newspapers a day, often straining the eyes by reading them on the train or the cars, and as for the children, the work in the schools is largely made up of writing. All of this puts a great deal more strain on the eyes than the eye is really fit to bear if it is at all abnormal. The young child's eye is particularly susceptible to harm caused by eye strain, because its eye is not fully grown and is therefore more or less in a plastice condition and easily affected by close work. Every baby with healthy eyes is born far-sighted, and every near-sighted child obtains its near-sightedness from the effects of eye strain, except where the eye is already diseased.

In addition to the eye strain of the present day, the increase in the wearing of glasses is probably due to the fact that the profession of medicine is giving more attention to the eyes than in the days when there were no eye specialists, and therefore more children and more adults receive proper attention today than when the eyes were examined by jewelers and opticians.

The effect of eye strain are seen in childhood in a more marked degree than in adults, not only because of neglect to procure glasses when needed but also because the child is forced often to wear glasses without understanding whether or not it is right to object. The wrong glasses on an adult are rarely worn for any length of time, but many children are found by every oculist to be wearing incorrect glasses which they have worn for months or even years. If a child is wearing wrong glasses, the fact of wearing such glasses inevitably prevents that child from doing its work properly in the schools. A famous Western physician has said, "It is a crime to send a child to school when it is unable to do the work properly from a defect which is remediable."

In the public schools of the City of New York, a very great evil is the repetition of the classes of study from one year to another, without promotion. This retardation in school is not only an unnecessary expense to the tax-payer, but is a harm to the child in that it forces the child to go over the same ground of study when it is unable, from whatever cause, to master the studies of the particular grade. Not all retarded children are so retarded from eye strain, but the effects of eye strain are one of the main causes of such retardation.

All of this has been noted by a number of competent observers and is a matter of record, but only recently has any effort been made to give the children in the public schools proper attention for defective vision aside from private agencies. A number of years ago the Department of Health of the City of New York through its Bureau of Child Hygiene, with the co-operation of the Department of Education, established eye clinics for the correction of defective vision. At present there are ten such Children's Eye Clinics in the Greater City of New York, and to them the visiting school nurses and the medical school inspectors refer parents who are unable to pay a private eye specialist for an examination of the eyes of the child with defective vision. These eye clinics have accomplished a very great amount of work and have excited considerable interest in the hygiene of the eye and in preventing eye strain through the correction of refractive defects.

Of course, not all children can be brought up to normal vision even with proper glasses, and so the Department of education at the suggestion of the Staff of the Children's Eye Clinics has established thirty-five Sight Conservation Classes, where children with defective sight can be given special attention in particular classes by teachers trained for this kind of work. There are also eight Blind Classes where children are put whose sight is still more defective than the sight of the children in the Sight Conservation Classes. These classes have proven to be one of the greatest steps in advance in the Department of Education. It has been found that children put in the Sight Conservation Classes have been able to make up lessons for which they had previously been retarded, and that their progress has been in many cases as rapid, or more rapid, than among pupils in normal classes. The children are not kept in these Sight Conservation Classes any longer than is absolutely necessary, but are returned to the normal classes as soon as vision improves and eye strain disappears.

In the Children's Eye Clinics a careful watch is taken of the progress of the child in wearing glasses, and children with markedly defective vision, especially those with progressive near-sightedness, are directed to return to the clinics every three months, and other children are told to return at least every year or, more often, every six months. In this way, by keeping careful watch over the children's eyes, many children are prevented from having any increase in their defective sight, and a large number are improved through the care in adjusting the glasses from time to time to their visual needs. Often children who have need of glasses in early school life by wearing glasses during the early years are enabled to remove them in adult years.

Sometimes when a mother is told by the school physician or the school nurse that her child needs eye glasses, she will come to me and tell me that she and her husband and other members of the family have never worn glasses and that the child can see well enough around the home, but really, as you will readily see, that is not the real test as to whether a child should, or should not, wear glasses. If the child is far-sighted, it may be that he still needs glasses because of headaches and inability to use the eyes at school. There is, as I said in the first part of this article, a great deal more strain on the eyes for close work today than formerly, and I find that the child who uses his eyes in school frequently suffers from headaches even when his vision for distance is normal. Glasses removing eye strain should be worn constantly, particularly so in the cases of school children. It is only in this way that eye strain can be avoided, and yet many parents are unwilling, either through fear of the glasses being broken, or for other reasons, are reluctant to insist on the glasses being worn constantly. If perfect results are to be obtained, however, it is a waste of time to put glasses on a child and have them worn only at school or whenever the child so pleases. The eye strain is then not corrected.

We see often that the eyes become blurred and the lids red and thickened through the irritation of the effort of the child to see, and any child with red lids or with the symptoms of headaches and difficulty in keeping his attention on his books should have his eyes examined and glasses prescribed whenever a defect is found. Very many children are bright and lively in play out of school hours, and yet when you see them in school their very natures seem to change, and they become indifferent and inattentive to their studies and unable to keep their attention on their books for any length of time. These lively children are not to be scolded for what they cannot avoid, and you will find that nearly every one of these children has some defect of vision requiring proper glasses.

The Children's Eye Clinics of the Bureau of Child Hygiene of the Department of Health are meant, of course, merely and only for those parents who are unable to pay for the services of a private eye specialist, and the school nurse and school doctor are directed not to send to the Eye Clinics any patient suitable to go elsewhere, and are particularly forbidden to send children already under the care of a private oculist or of another hospital eye clinic.

There are in all the schools periodic inspections of the eyes, as well as inspections for other defects in school children, and the process of sending children to the Eye Clinics of the Bureau of Child Hygiene is very simple, and much as follows: the school nurse, or the school doctor, gives the child found with defective eye sight a card with the address of one of the ten Children's Eye Clinics upon it, and directs the mother to take the child there, or to any other dispensary or eye clinic in the city. The Children's Eye Clinics of the Bureau of Child Hygiene often are preferred, and the children have gone to these clinics in great numbers because in the hospital eye clinics which are crowded with adults, the child with defective eye sight is apt not to be given the complete attention that is so necessary in these cases and which can be given at the Children's Eye Clinics of the Department of Health. Some of the hospital eye clinics such as that of the Knapp Memorial are, from lack of room, referring children to the Children's Eye Clinics of the Department of Health for all refractive work.

In addition to this work on defective vision, the Children's Eye Clinics have been treating the various contagious diseases of the eye which exclude the child from attendance at school. This branch of the work preceded even the work for defective vision. Away back in the fall of 1902, it was found that there was a great deal of trachoma, or contagious granulated eye lids, in the public schools of the City of New York and a committee of eye specialists headed by the late Dr. Richard Derby made a survey of the schools, which led to a demand for the establishment of eye clinics in the Department of Health. The reason for this was similar to the reason already explained for the work in defective eye sight in the Children's Eye Clinics, in that so many children were excluded from attendance at school that the special eye hospitals declared themselves unable to care properly for such cases. So these Children's Eye Clinics have performed for a number of years this dual function of treating contagious eye diseases and of remedying defective eye-sight.

The justification for these eye clinics in treating contagious eye diseases seems to me to be that children are forced by law to go to school, and therefore your child or my child is likely to sit next to a child with trachoma or with "pink eye" and catch one of those diseases from its intimate contact with the other child. It is certainly the duty of the City of New York to see to it that a child is not harmed by compulsory attendance at school. These Children's Eye Clinics have had a remarkable success in decreasing the prevalence of trachoma, or contagious granulated eye lids as it is sometimes called. Trachoma or granulated eyelids, is largely a disease preventable by cleanliness and treatment, yet it is one of the most dangerous diseases of the eye sight. Untreated, trachoma is very apt to cause the eye sight to be markedly impaired, or even destroyed, and yet with proper care it is probable that trachoma can be stamped out practically entirely in the City of New York. We have gone very far on that road, but there is still a great deal to be done yet before the danger to school children is entirely done away with through these eye clinics.

To recapitulate:

(1) Defective eyesight, while probably not more frequent today than in former years, retards children in school more than similar defects handicapped our forefathers. The use of proper glasses to correct eye strain caused by refractive errors enables many children to improve their scholarship and to avoid being left back in their classes.

(2) Sight Conservation and Blind Classes of the Department of Education are a great boon to the children whose eyes are defective from progressive refractive error, or whose vision is incurably dimmed from the scars of former eye diseases. Such children are often able in these classes to make progress in their studies equal to their more fortunate companions in the normal classes. All children whose vision in the best eye can not be improved with proper glasses to 25/50 of normal vision or whose glasses must be changed frequently, due to increase in their refractive defects belong to these classes.

(3) The Children's Eye Clinics of the Bureaus of Child Hygiene, Department of Health, were established to provide an examination of the eyes of school children for defective eyesight in cases where the parents are unable or unwilling to secure the services of a private oculist. They have furnished expert treatment of refractive errors in school children in many thousands of cases each year of their existence. Being situated, with one exception, in public school buildings, they have intimate connection with the school life of the child, and hence it has been found possible to control to a great extent through the school nurses the attendance of the children and to keep careful watch over the results obtained. It is through the medical inspection of the schools by the visiting inspectors and nurses that children are mainly admitted to these clinics, although any parent may voluntarily send or bring a child for examination. In the fall of every school year, "Health Day" is celebrated by a united effort of teachers, nurses and doctors to get every defective child under treatment.

(4) One of the most successful forms of preventative medicine accomplished by the Bureau of Child Hygiene has been the control of trachoma in the public schools. In the early years of the present century it was found by Dr. Derby's survey to be nearly, if not quite, an epidemic in the schools of the lower part of Manhattan. In 1904 I made an investigation of one large school of the East Side in which I found over four hundred cases of trachoma. I doubt now if there are a dozen marked cases of the disease in the same locality. It is the hard and faithful work of the medical school inspectors and nurses which has accomplished this magnificent result, and it is our all too few (ten for all of Greater New York) Children's Eye Clinics which are maintaining guard over the eyes of your child and my child against all forms of contagious eye diseases.

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Surgical Considerations of Hepatic Cirrhosis

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Although fibrous hepatitis or cirrhosis of the liver is pre-eminently a disease of middle life, far more common in the male sex, many years ago Howard and Hatfield collected a considerable number of cases among children and they found that it may be present in the fetus.

The disease is undoubtedly caused, in many cases, by the action of some irritant (most often alcohol) brought to liver by the blood vessels, especially the portal vein, or entering through the bile ducts or directly from the surface.

There is, in all probability, some unknown predisposing cause on the part of the individual, because many persons addicted to the inordinate use of ardent spirits are free from the disease.

Welch asserts that many forms of irritant may bring about the cirrhotic condition, and he believes that the pigmented liver of coal miners often leads to cirrhosis. Eichhorst favors the view of arterio sclerosis in the body, generally; and Botkin maintains that not infrequently the affection has its genesis in the complete or partial occlusion of the portal vein.

Latterly, the subject has taken on a new significance and a close relationship is now found between splenic anemia and hepatic cirrhosis. In 1881, Hilton Fagge called attention to the fact that in a considerable number of deaths in Guy's Hospital, in which the individual was apparently in the best of health, postmortem showed typical cirrhosis of the liver and, while not the first to show "compensatory circulation," his accurate and scientific work helped to place the subject upon a rational basis.

The late Sir William Osler enumerated four different means of anastomoses that may effect a compensatory circulation, and these he describes as follows: The accessory portal system of Sappey, connecting the portal with the epigastric and mammary systems (this explains the so-called "Caput Medusae"). Communication is also established in the gastroepiploic omentum and about the gall-bladder, especially in the suspensory ligament of the liver. By anastomosis between the esophageal and gastric veins. Between the hemorrhoidal and the inferior mesenteric veins. And, lastly, the veins of Retzius, which unite the radicals of the portal vein in the intestines and the mesentery with the inferior cava and its branches.

Atrophic cirrhosis of the liver, while not a surgical entity in itself, becomes a matter of surgical consideration with the advent of ascites. Until 1889, the condition was alone treated by means of tapping. As it is now, so was it then, the number of tappings had to be repeated so often that Talma and Van der Meulen determined to operate but the patient died in their hands from shock.

For three years following, futile efforts were made to modify and improve the technic and to devise new operations; and it was just three years later that Lens, a protegé of Talma, recorded that in a then recent case he had sutured the omentum to the parietal wound with unsuccessful results. The patient who was left in a condition of invalidism, was subsequently tapped on four different occasions and died six months after the initial operation.

Three years after Lens's operation, that is in 1895, Morison performed a thoroughly successful operation. His operation removed portal obstruction by affording communication between systemic and portal venous channels; this he accomplished by suturing the omentum to the anterior abdominal wall, where it became firmly adherent and by roughening, with gauze friction, the outer surface of the liver and spleen, so that they also became firmly adherent to the parietal peritoneum. The patient might have lived for many years but underwent a subsequent operation two years later for a ventral hernia at the site of the previous operation. Postmortem revealed liver, omentum and spleen all firmly adherent to the parietal peritoneum by strong fibrous bands.

Rolleston and Turner do not favor the theory that the new adhesions divert the portal blood column and that ascites results as an expression of high blood pressure in the portal vein because, by vivisection, the portal vein has often been tied and no ascites necessarily results but that the ascitic condition is the result of toxemia in the blood rather than the effect of any obstruction. They do not deny the marked benefits, if not an actual cure, that may result from Morison's operation, but they ascribe the favorable outcome to two factors: less blood to the liver means less toxemia; vascular adhesions allow of a larger arterial blood supply to the liver, thus favoring improved nutrition to the liver cells. Bunge asserts that the Morison operation is best adapted to the following condtions: atrophic cirrhosis of the liver, cirrhosis of cardiac origin, pseudo-cirrhosis with chronic pericarditis, chronic hyperplastic perihepatitis, and in the very rare cases of portal stenosis due to a thrombus. These views are quite in accord with the searching inquiries of Sinclair White (*Brit. Med. J., Nov.* 10, 1906). The Mayos incline to the belief that much of the improvement and the good established through such a procedure lies in the substitution of the extraperitoneal lymphatics for the overworked lymph channels of the diseased area.

Improving upon the earlier operation of Morison, we were next given the operations of epiplorrhaphy or epiplopexy, otherwise variously designated, the Talma-Morison operation.

The operation then as now was done under local anesthesia, with an abdominal incision from the ensiform to the umbilicus down to the peritoneum. As the peritoneum is opened the ascitic fluid gushes out; all fluid is removed from the abdomen, and the whole upper surface of the liver and also the spleen, are subjected to vigorous friction with a gauze sponge. The omentum is brought into the wound and is sutured to the parietal peritoneum of the anterior abdominal wall. The abdominal wall which is lax after the fluid has been emptied away, is everted as much as possible and the part of it as far away from the middle line as is accessible is first united to the margin of the peritoneum. Schiassi, of Bologna, reports many successful operations, modifying this procedure, by placing the omentum outside of the parietal peritoneum, between it and the posterior surface of the abdominal muscles in front.

The mortality is large in those of advanced years. Kidney degeneration and arterio-sclerosis militate against the operation. It is also contraindicated in cases of advanced cardiac disease and in all constitutional diseases that have seriously impaired bodily health; in this class tuberculosis stands pre-eminent.

According to Pitt, 23 per cent of those operated upon for cirrhosis of the liver were found tuberculous at autopsy. Rolleston puts his figures at 30 per cent and Kely-

nack says that 50 per cent of his cases at autopsy had tuberculous peritonitis. Monprofit (French Surg. Cong.), up to and including 1903, collected reports of 224 cases with a mortality of 28 per cent and White compiled a series of 227 cases of epiplopexy as follows: Deaths, 33 per cent; failure, 17 per cent; improved, 13 per cent; cured, 37 per cent. However, in a most intelligent study, Greenough reports a series of 105 cases with a mortality of no less than 30 per cent in less than a month after operation.

Sinclair White, the distinguished British authority, has had a wide experience in this class of operations, and reports quite a number as permanently cured. His operation makes the incision in the peritoneum to the left of the median line to obviate injury to the falciform ligament and its anastomotic veins. Through this incision the fluid is siphoned off. Another drain (glass) reaches to the floor of the pelvis through a median suprapubic opening.

The upper surface of the liver and the under surface of the diaphragm are subjected to vigorous friction by gauze sponges and the anterior border of the liver is sutured to the diaphragm with silk. White detaches the peritoneum, together with the rectus sheaths above, below and to the left of the abdominal wound, which is then turned outward and stitched in its new position. The omentum is then attached to the raw peritoneal surface left. The operation completed, the patient is placed in bed, the head of the bed elevated, until the amount of fluid aspirated is less than three ounces daily; the pelvis is pumped dry every six hours.

As a valuable resumé to the surgical treatment secondary to hepatic cirrhosis, White says (*Brit. Med. J.*, November, 1905):

"Apart from the usefulness in keeping the upper abdomen dry and thereby favoring incision between the viscera and the abdominal walls, its beneficent influence is similar to that exerted by the pumps of a water-logged ship. In progressing cirrhosis there is an ever-increasing condition of unstable equilibrium between peritoneal effusion and peritoneal absorption, and a little thing suffices to destroy the equilibrium. So soon as this occurs and the ascitic fluid begins to accumulate, the movements of the diaphragm are impeded and one of the most important mechanisms concerned in peritoneal absorption becomes seriously handicapped."

As a result of his operation, he remarks:

"Although the new anastomotic vessels develop with great rapidity, a short interval must necessarily elapse after the operation before its full effects on the portal circulation are manifested. In cases when drainage is not employed the fluid may reaccumulate during this time and require removal by tapping."

In an interesting statistical study, White offers the following valuable analysis from the series of cases of Monprofit and Bunge:

Total number of cases, 227. Deaths 75 (33 per cent): failures 34 (15 per cent); improved 29 (13 per cent); cured 84 (37.3 per cent). This leaves five cases that could not be traced. The causes of death were: peritonitis 14; uremia 12; shock and cachexia 10; heart failure 5; hematemesis 3; intestinal obstruction 2; pleurisy, meningitis, apoplexy and bronchopneumonia, each 1.

One moot question in the after-treatment is the subject of drainage. British surgeons and those of the Continent incline to the use of tube drainage in the pelvis, the fluid being frequently evacuated, under rigid antisepsis, until it fails to reaccumulate. In this country, the use of drainage, because of the high mortality due to sepsis (about 20 per cent) has met with emphatic disfavor; so the reaccumulated fluid is removed by repeated aspirations during the formation of the anastomosis.

Many ingenious operations have been done with some measure of success in the hands of different operators. For want of space just one of these is mentioned.

W. S. Handley (*Brit. Med. J.*, 1910, i. p. 853) operated upon a middle-aged woman for ascites due to atrophic cirrhosis, effecting internal drainage by silk threads. He employed four series of stitches of tubular woven silk whch he passed in and out, in a series of loops, through the peritoneum and the subperitoneal tissues of the right iliac fossa to the outer side of the mesocolon. In this way he left portions of silk in the peritoneal cavity for the purpose of absorbing fluid through the action of the capillarity.

These stitches, terminating in the position of the anterior superior spine of the ilium, were threaded to a special probe and run beneath Poupart's ligament to the external aspect of the femur so as to pass well down into the subcutaneous tissues of the thigh. Handley believes that the procedure would have resulted in a complete success had there not been complications resulting from the presence of syphilitic lesions.

It is interesting, in passing, to mention a word concerning Banti's disease, or "splenic anemia," a condition thoroughly misunderstood, probably a toxemia, in which splenic enlargement is a characteristic, with cirrhosis of the liver and ascites as terminal symptoms. It is the association of the three factors—splenic enlargement, hepatic cirrhosis and ascites—that cause the affection to bear Banti's name. Before the disease has progressed too far, splenectomy is the operation. By this procedure in not a few instances, the hepatic condition has promptly disappeared. Later in the disease, in addition to removal of the spleen, drainage of the gall bladder and epiplopexy may be demanded. Tansini reports a case of Banti's disease that had progressed for some time. He performed upon this patient the operations of splenectomy and epiplopexy. One month later the abdomen again filled and resort was made to tapping. Following aspiration of the fluid, the patient made an uneventful recovery.

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The Diagnosis of Cancer of the Rectum and Sigmoid.

Daniel Morton, of St. Joseph, told the American Proctologic Society that there is no first symptom of the cancer of the rectum, but rather a fairly constant symptom complex consisting of a sudden unaccountable "initial constipation," followed by a "morning diarrhoea" and in six to nine months bloody stools. The symptoms vary, as stated by Goodsell and Miles, according to the progress of the disease, i. e., prior to surface disintegration, during surface disintegration, during infiltration and perforation of rectal wall, during almost complete occlusion, and during metastases to other organs. The chief symptoms of every case are constipation, diarrhoea, pathologic stools, pain, loss of weight and constitutional disturbances. A thorough examination should include careful clinical history of patient, examination of stools, digital examination of rectum, digital examination of vagina, bi-manual examination of rectum, proctosigmoidoscopic examination, biopsy (?), possible exploratory laparotomy, differential diagnosis, and X-ray examination. A differential diagnosis must be made from hemorrhoids, blind internal fistula, polypi, superior pelvic abscess, intussusception, tumors, outside rectum, diverticulosis, syphilis, tuberculosis, actinomycosis, villous tumor, and fibrous stricture. Cancer stastistics seem to show that 50 per cent. of all cancers attack the alimentary canal, and 6.2 per cent. th rectum, and that, of those in the alimentary canal, 16 per cent. attack the sigmoid and rectum. In Herman's statistics of 20,054 cases of all cancers 12,004 were in the rectum. One must think of cancer of the rectum in terms of hundreds and thousands, and not as an occasonial finding. Hence the importance of its diagnosis. Finally the writer said that the usual late diagnosis may be the patient's, the doctor's, or neither's fault, but rather the result of our lack of knowledge of cancer here as everywhere.

Progress in the Treatment of Syphilis

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(Concluded from January)

Treatment of Syphilis

H. S. Newcomer (*Am. J. Med. Sci.*, Oct., 1921), believes that one of the important points in the treatment of syphilis is to give sufficient arsphenamine for a considerable period of time. The patients receive from 12 to 18 grams of arsphenamine. Those having primary or secondary infections receive that amount in about one year, and those having tertiary infections receive a like amount during two or three years. Some of the latter will require even more treatment at some future time. Of 123 patients having primary or secondary syphilis 66 had an established negative Wassermann after receiving 12.5 grams in 75 weeks; 35 suffering from tertiary lesions received 16.1 grams during 124 weeks and 66 per cent. showed an established negative.

T. K. Monro (*Glasgow Med. J.*, Nov., 1921), says there is nothing now known as effective as a series of intravenous injections of salvarsan, or one of its equivalents, combined with a prolonged course of mercury. If for any reason salvarsan is contraindicated, a long course of mercury (four or more years) is our best resource. K. I. is still a specific remedy for tertiary lesions but this treatment should not be prolonged unduly. K. I. does all it is likely to do in three or four weeks, so far as the removal of the tertiary lesion is concerned; if continued much longer, the virus may become resistent.

Lesser (*Deut. med. Woch.*, Jan., 1921), discusses a method of curing Wassermann-positive cases of syphilis. He advises a quantitative control of the influence of therapy upon the reaction in the following sense: The degree of the positive state of the blood should be tested by taking the smallest quantity of serum of the patient just necessary to effect a positive. If, e.g., a dilution of 1 in 1,000 of serum of the patient shows a positive reaction before treatment and a dilution of 1 in 200 becomes necessary after a fortnight's treatment to effect a positive reaction, the original strength of the reaction is diminished to one-fifth. This enables one to control the progress of the therapy. From this point of view the author controlled (a) the effect of exclusive mercurial treatment on positive Wassermann state; (b) the effect of exclusive salvarsan treatment on positive state of blood. Results: mercury gradually and regularly reduces the positive state towards negative. Salvarsan has a different effect altogether. The first injection or two (0.3 or 0.45), especially in old cases of syphilis, often augments the positive state which means a provocation—an awakening of the trep. pallidum in the tissue—thus adding more "reagines" to the blood. Following the provocation the next injections in most cases begin to diminish the positive state, very often leading to a negative state altogether.

The author then compares the therapeutic results in a large number of cases treated exclusively with either salvarsan or mercury. Summarizing, he does not acknowledge mercury as a real remedy for syphilis, contrary to salvarsan, especially with regard to the fact reinfections were so rare before salvarsan was known and are becoming more frequent since Ehrlich's remedy is being applied.

R. Duperie (*Gaz. heb. des Sci. Med. d. Bordeaux*, 41, 605-6, 1920), reports promising results with the method of subcutaneous injections of novarsphenamin with novocain suggested by Poulard. This method consists in injection of 15 cgm. of the arsenical in solution in 1 cc. of 1 per cent. novocain into the adipose tissue of the buttocks daily or on alternate days. The cases treated by Duperie included both heredosyphilis and acquired syphilis in children aged from 8 to 14 years. It is interesting to know that these included two cases of chorea with positive W. Rs., the choreic movements ceasing after ten and twenty injections respectively.

Fabry (*Med. Klin., No. 22*, 1922), discussing the therapeutic results of sulfoxylate salvarsan treatment of syphilis, reaches the conclusion, that no reactions were observed even after the administration of doses which far exceeded the quantities usually injected of other salvarsans. Small and medium sized doses are ineffective. Combinations with sulfoxylate have the advantage of longer retention by the organism; it follows therefore, that large doses should only be given at longer intervals (10-15 days). This method is therefore not indicated for the treatment of florid secondary lues, in which it is necessary to destroy the spirochetes rapidly by repeated injection. The other salvarsan preparations are more suited for this method of procedure. Combined treatment with the latter preparations and with sulfoxylate, alternately, is frequently justified. Its general usefulness lies in the field of lues latens with a so-called resistent positive Wa-R, especially when large doses of the arsenicals have already been administered. Large doses should be injected at long intervals (4-5 weeks) and the Wa-R should be tested repeatedly.

As has been said, most physicians insist upon combined treatment in syphilis, but Krefting (*Derm. Zeit.—Urol. & Cut. Rev.*, 636, Oct., 1922), gives the results of ten years' experience treating syphilis with salvarsan alone. He believes the original salvarsan superior to neosalvarsan. He has given 10,200 injections of salvarsan, 2100 of neosalvarsan and 2200 of silver-salvarsan and has had no deaths. He has seen occasional cases of icterus and 19 cases of reinfection after a salvarsan cure. He entirely disapproves of provocative injections. His ten years' treatment includes the handling of 1749 persons, of whom 568 were primary syphilitics. In seronegative cases he believes 3 to 5 injections of salvarsan alone in doses of 0.5 to 0.6 gram at intervals of 14 days for strong men, and 0.3 to 0.4 for women are sufficient for an abortive cure. In seropositive primary cases he thinks it necessary to give more than 5 injections and to continue observation over a longer period. Krefting treated 668 cases of secondary syphilis with salvarsan alone and with excellent results. He treated 26 cases of tabes incidentally and 8 systematically and observed subjective and objective improvement. He says it is remarkable how well tabetics bear injections in relatively large doses and how anxious they are to keep up the treatment.

Krefting's results are far more gratifying than those obtained by the average observer and we are still of the opinion that most physicians will adhere to the combined treatment.

H. O. Foucar (*Am. J. Med. Sci.*, Nov., 1921), has found only 25 cases of severe anemia associated with syphilis out of 4800 cases. In these cases he thinks mercury should be used with caution. Arsphenamin has

been much more effective in secondary than in primary anemia. Reactions to arsphenamin injections must be avoided as they produce an alarming drop in hemiglobin. Transfusion is the ultimate resort in primary cases and in those associated with syphilis in which arsphenamin has failed. Even in the presence of syphilis the best effect would be secured by both together, as by arsphenamin and transfusion.

H. B. Anderson (*Am. J. Med. Sci.*, July, 1921), selected 39 patients with syphilis who had received 20 or more doses of arsphenamin for at least a two year period. Functional kidney tests fail to show any conclusive evidence of kidney injury.

Abortive Treatment

Mulzer (*Munch. med. Woch., p.* 664, 1921), observes that communications on the failure of abortive treatment of lues in the primary seronegative stage have lately increased in the professional medical literature and more and more raise warning voices to be careful in such cases. (Reports of Meirowski, Freymann, Kerl and Loewenstein). Author reports three cases in which combined abortive treatment with neosalvarsan and Hg was unsuccessful. Great care must be exercised in judging the results of a course of abortive treatment. There is no possibility of determining with absolute certainty whether a cure has been effected or not. It is not possible to depend on the W.R. alone as it will frequently be negative as in the reported cases.

Conscientious physicians will always demand that their patients remain under clinical and serological control for several years, for clinical observation and clinical experience are still, and especially in cases of abortive treatment, the most important. The only conditions that insure good results are (a) the use of large doses; (b) early beginning of treatment.

Incision, even though combined with Hg treatment, will often fail (Duhot, Thalmann, Finger, Lesser, Wilander, Neisser and E. Hoffman) for the spirochetes circulate in the system very early. Uhlenhuth and Mulzer report that eight days after intrascrotal inoculation of a rabbit with a solution containing spirochetes a virus was determined in the blood and after a period of fourteen days also in the inner organs; in other words at a date when luetic manifestations are not yet visible on the inoculated organ.

According to the author's opinion the use of large doses is imperative for successful treatment. The present preparations are too toxic for administration in such amounts, therefore he looks forward to the results of present research work of Kolle in the Speyer Haus.

Meirowsky and Leven (*Muench. med. Woch., p.* 106, 1921), believe that no matter whether the W.R. is positive or negative in the abortive treatment of syphilis, treatment should be continued through two or three courses.

Reactions

It is generally believed that reactions are very largely due to improper technic. If the patient is properly prepared as to the cleansing of the alimentary tract and if the solution is made with due reference to attention to details, such as sterility of all parts of the apparatus, *careful filtration* of the solution (which is a most important part of the technic) and *slow administration*, the table reactions will become almost a memory.

Disturbances following the introduction of arsphenamin into the system are regarded by Wechselmann (*Ther. d. Geg.* 62:15, 1921) as (1) neurorelapses; (2) icterus; (3) skin eruptions and (4) cerebral symptoms. He finds that the skin eruptions are more serious, while the neurorelapses are on the decrease. He remarks that the skin eruptions are due to a combined mercury-arsphenamin treatment and seldom to arsphenamin alone, and does not believe that icterus is of much practical importance, the most serious damage caused by arsphenamin being seen in encephalitis hemorrhagica.

There do not seem to have been as many references to jaundice of late as we were accustomed to seeing, although Stokes and Ruedemann, (*Arch. Int. Med.*, Nov., 1920), observed an increase of over 1000 per cent. in their cases between August, 1918 and July, 1920.

Elliott (*Lancet, p.* 1180, 1921) notes a case of late jaundice appearing 42 days after the last injection of arsphenamin.

Warfield (*Med. Clin. N. A.*, 4:1293, March, 1921), divides the cause of jaundice into three groups: obstruction, infections and intoxications, and congenital icterus. He observes that very few fatal cases have been reported and in fatal cases death was due to acute yellow atrophy, which inclines him to the belief that jaundice is due to arsenical poisoning.

Lindstedt (*Sven. lak-sall. handl.*, June 30, 1921), saw 20 cases of arsphenamin icterus, one of which died from apparent acute atrophy of the liver. He believes that icterus is solely caused by the syphilitic infection, that the jaundice can be regarded as an expression of a syphilitic recurrence, but that it can also be the expression of an injury to liver caused by the toxins of syphilis. If salvarsan is of etiological importance it is probably of a predisposing nature as he feels that it is possible but improbable that the drug alone can incite the disease. Lindstedt says that mercury may have the same effect as salvarsan.

His views are borne out by Tachau (*Deut. med. woch.*, June 16, 1921), who says that clinically nothing can be demonstrated against salvarsan as a causative factor in early salvarsan icterus and acute yellow atrophy. The late icterus does not depend upon dosage and its character is usually benign.

Fabry & Wolff, (*Med. Klin.*, Jan., 1922), comment on the increasing prevalence of cases of jaundice among persons taking arsphenamin treatment during periods when jaundice is uncommonly prevalent under other conditions. They make a point to treat the jaundice in syphilitics with more arsphenamin and always find that the jaundice retrogesses under it. Their extensive experience in this line confirms the mono-recidiv character of the jaundice.

Dermatitis and Allied Conditions

A very few cases in which the arsenicals and mercurials are employed develop a dermatitis. Fortunately, the percentage is exceedingly small but physicians should not blind themselves to the fact that these powerful drugs may show a reaction in the form of a dermatitis which requires prompt and effective treatment.

In an interesting study by Harnett, of Calcutta (*Ind. Med. Gaz., p.* 441, 1921), the observer notes that the amount of 606 which can be tolerated by the British soldier is too great for the Indian soldier who is of lighter weight and build, and still more so for drivers who are still of lower strength, an incidence of dermatitis of 0.3 per cent. among British troops, of 2.3 per cent. among Indian sepoys and 5.7 per cent. among drivers seems to indicate the necessity for graduating the amount of the arsenical used in proportion to the physical build of the patient.

Ehrlich laid down the plan of giving a certain amount of salvarsan for a certain number of pounds bodyweight but most physicians merely give minimum or

maximum doses and pay very little attention to the weight of the patient.

Harnott notes that when he substituted intramuscular injections of 914 for intravenous injections of 606 and gave up the intramuscular use of mercury an immediate improvement was apparent, while his clinical and Wassermann results were equally good.

We doubt the wisdom of omitting mercury except in certain cases, but we do believe that if physicians would study their patients instead of adopting a uniform standard line of treatment, dermatitis would be much more infrequent.

Moore and Keidel (*Arch. Int. Med.*, p. 716, 1921), studied 23 cases of dermatitis and allied reactions following the arsenicals. They drew particular attention to the blood picture of fourteen cases. The changes consisted particularly of leukopenia, decrease in polymorphnuclear neutrophiles, eosinophilia and the appearance of many fragile cells. They believe that the prognosis of these reactions is grave as there were five deaths in their 23 cases.

Olson (*Jour. Lan.*, p. 338, 1920), notes the seriousness of this condition.

Parounagian (*Arch. Derm. & Syph.*, Jan., 1921), is another observer.

Schoff (*Ann. d. mal. ven.*, May, 1921), thinks the sympathetic nervous system plays a role in peripheral vasodilatation.

Troebs (*Derm. Woch.*, July 2, 1921), saw seven cases of dermatitis in two years, during which period 2000 injections were given. He noted that of these, two followed neosilver-salvarsan and were quite severe. Despite this fact, he advocates neosilver-salvarsan as an excellent remedy to which syphilitic symptoms respond promptly and which has a favorable serological action.

Klaar (*Wein. klin. Woch.*, March 23-30, 1922), reports a series of cases with necropsies in which the cause of death was probably cardiac insufficiency. He believes that large doses of arsphenamin can be excluded as the cause of the development of the dermatitis which usually appeared without premonitory symptoms and must be explained by a specific reaction power of the organism.

Klauder (*J. A. M. A.*, May 6, 1922), reports a case of chronic dermatitis and respiratory symptoms due to external contact with the arsphenamines in a physician who was in the habit of administering arsphenamin. When others prepared the drug for injection and the physician wore rubber gloves his difficulties ceased.

Stokes, of the Mayo Clinic, in talking to physicians at the 1922 meeting of the Clinical Congress of Physicians, recommended for the treatment of dermatitis exfoliativa a colloidal bath made up of oatmeal and soda bicarb. several times daily; the patient to be immersed for half an hour, allowed to dry without rubbing, and powder left on body. He gives Fischer's solution as an enema to help alkalinize the body. He observes that practically all cases of dermatitis exfoliativa show an ulcerative colitis.

C. C. Dennie, of Kansas City, read a paper relating to sodium thiosulfate in the treatment of dermatitis exfoliativa before the American Dermatological Association at its 1922 meeting. This drug, which is given intravenously, is utilizable in acute and chronic arsenic and mercurial poisoning and in other metallic poisonings. In bichlorid of mercury poisoning and mercurial stomatitis it seems to be very effective. The writer has observed very excellent results following the use of sodium thiosulfate in dermatitis following the use of the arsenicals and it would appear that daily intravenous injections of this drug offer complete relief from this condition.

Antimony Treatment

Several American and foreign research workers are experimenting with antimony, with encouraging results.

Benjamins (*Ned. tijd. v. Gen.*, Jan. 1, 1921) has obtained good results from the intravenous injection of antimony in various conditions, including trypanosomiasis, and his opinion is corroborated by J. B. Christopherson, (*Lancet*, p. 522, 1921).

Some interesting studies in the trypanocidal action of antimony compounds was made by Voegtlin & Smith, (*J. Phar.*, p. 453, 1920).

T. L. Driscoll, of Richmond (*Dent. Cosmos*, Oct., 1922), reports the treatment of 14 cases of trench mouth with a freshly prepared 1 per cent. solution of antimony and potassium tartrate made in freshly distilled, sterile water. The initial injection was 5 cc. intravenously followed in two or three days by a second injection. Usually about six injections are required to effect a permanent cure.

Pharmacological Studies With a New Iodin Compound—Mirion

A. Froehlich (*Wien. klin. Woch.*, 34, 105-6, 1921) says Mirion consists of an I containing nucleus introduced into a colloid complex. The exact constitution is not given. The preparation is a yellow, transparent fluid with a slight odor of I and very weak acid reaction and containing only 1.7% I. None of the I is free. The I is easily liberated by weak oxidizing agents, such as H_2O_2. This property of the easy liberation of active I which then reacts with protoplasmic material is held to be responsible for the pharmacologic reactivity of the substance. In distinction from inorganic I compounds this substance yields its I quantity in the body under the mild oxidative processes of the cells and tissues. The preparation is entirely nontoxic even in large doses. The absorption is rapid, as is the elimination of I in urine and stools of animals. At autopsy I was found to be retained only in the walls of the gastrointestinal canal. When the substance was injected into syphilitic patients and infected animals there was a marked sp. retention of I in the affected tissues.

A New Arsenical, F-arseno No. 132

Pomaret (*La Presse Med.*, No. 12, 1922), concludes that he has hit upon the employment of the simplest and most active of the arsenobenzol compounds—amino-arseno-phenol, the base of 606, which he has rendered applicable in therapeutics in the form of a stable compound, capable of being sterilized. "Preparation 132" for intramuscular injection. It is painless and tolerated without reaction either local or general. He finds that by this mode of administration the noxious effect is diminished and therapeutic activity increased. To these important facts may be added an absence of nitritoid crises due in part to the nature of the preparation itself and in part to the mode of penetration into the organism. Under these conditions it permits the administration of a dose which one would not dare use by the intravenous route for fear of violent reactions.

It is probable that the slow elimination explains the excellent therapeutic results of the intramuscular method. He agrees with Fleig that the therapeutic activity of organo arsenicals is in direct proportion to the length of time these products remain in the organism and in inverse proportion to the rapidity of their elimination. In this study, which Pomaret began eight months before the publication of the article, over 150 patients were treated in various stages of syphilis: many of them could not

tolerate the intravenous dosage. He will report later his therapeutic results from the point of view of the disappearance of the treponema as well as the cicatrization of the lesions and the negative Bordet Wassermann.

The Linser Method of Treatment

Eicke and Rose (*Munch. Med. Woch.*, 68-45, 1921), say that spirochetes do not disappear from lesions as quickly on arsphenamin medication alone, and that clinical symptoms are not influenced with more advantage than with arsphenamin alone.

This method is the administration of neosalvarsan with a 1 per cent. sublimate solution. The solution is prepared by adding 1 cc. of a 1% sublimate solution to 2-5 cc. of distilled water. Neosalvarsan dissolves more quickly in this dilute sublimate solution than in ordinary distilled water and the resulting fluid is olive green, in which blood flowing from the vein back into the syringe at the time of injection is not visible. Beginners may produce an infiltration by this method but the infiltration is less painful. Patients sometimes complain of a very disagreeable taste which sometimes causes nausea and vomiting.

Pezolt (*Munch. Med. Woch*), carried out 3700 injections under this method and says that the method obviates all the disadvantages of the inunction cure and of the intramuscular injection. Of 591 cases treated, 213 started with a negative Wassermann and 378 with a positive Wassermann. Of the latter 127 were not tested subsquently. The other 251 cases showed 96 or 38 per cent. negative at the end of the course of treatment. At the end of three months 58 were still positive. Pezolt thinks the Linser method is the least unpleasant to the patient, least painful, with less fear of complications or consequences and that the phenomena of lues disappear more quickly. The Wassermann shows that the good results are not very permanent and that the amount of mercury should be increased.

Wassermann and Other Tests

Literature has been replete with references to the various diagnostic tests for syphilis. The *Am. J. Syph.* in 1921 devoted very considerable space to this subject, much of the material being from the pen of John A. Kolmer. He presented a new test, the technic of which is of no particular interest to the practitioner but which is very important for the laboratory worker.

He asks serologists (*J. A. M. A.*, p. 776, 1921) to give his test a fair and unbiased trial for the purpose of gradually adopting a technic which the majority of serlologists can subscribe to as being worthy of adoption as a standardized fixation test. He is extending his investigations and it is believed will develop along other lines which will prove of very material value to laboratory workers and thus to the profession.

Mahr (*J. Lab. & Clin. Med.*, p. 1, 1921), presents a colorimetric scale which makes it possible to determine with fair accuracy the finer gradations in the degree of syphilitic infection. Readings with this scale make possible the recording of the laboratory history of syphilis for each patient upon a graphic chart, giving a clear representation of the progress of each case.

Keidel & Moore (*Bull. Johns Hop. Hosp.*, p. 296, 1921), publish a study on ice-box modification of the Wassermann test and they favor its employment for diagnosis.

Luetin Test

Kilduffe & Soller (*Arch. Diag.* p. 249, 1921), show that the luetin reaction is without value and will give false and misleading results when iodides have been utilized for four weeks before or after the test. It could be made only when the patient is not under medication. They believe it to be of the greatest value in tertiary and hereditary syphilis in which the Wassermann is also of real value, but they do not think the luetin can replace the Wassermann as a means of diagnosis.

Kahn's Precipitation Test

Kahn, of Lansing (*Arch. Derm. & Syph.*, p. 570, 1922), presented a method based on the employment of syphilitic serum with alcoholic extract antigens of heart muscle. It is similar, for example, to the Sachs-Georgi and the Sigma Reaction but possesses these features: the diluted antigen has considerable stability; the strongly positive serums usually show spontaneous precipitation; the test is completed after three hours' incubation in a water bath; the end-results can be read with relative ease; the flocculations in the positive reactions are so heavy that even an inexperienced observer has no difficulty in recognizing them.

Kahn feels his test is valuable in putting a check on the Wassermann test. In comparing 1119 serums by Wassermann and Kahn tests, 227 positive Wassermanns gave 213 positive Kahns and 802 negative Wassermanns gave 767 negative Kahns, 21 doubtful and 14 positive. 90 doubtful Wassermanns gave 40 positive, 20 doubtful and 30 negative Kahns. In no instance did a serum giving a 4 plus or a 3 plus Wassermann show a negative Kahn precipitation, or a serum showing a strongly positive or positive precipitation give a negative Wassermann.

Nonne's Four Reactions in Syphilis

Goedhart (*Ned. Tijd. v. Gen.*, Oct. 29, 1921), investigated Nonne's four reactions (W. R. in the blood and cerebrospinal fluid, Nonne's reaction and lymphocytosis), In 88 cases of syphilis, 18 of these cases had more or less severe involvement of the central nervous system and the remaining 70 were all examples of old-standing or latent syphilis. In 51 of 70 cases cerebrospinal fluid was entirely normal and in 19 showed the following changes: Nonne's reaction was positive in 17, being present alone in 10 cases and in association with lymphocytosis in 7 cases; in two cases lymphocytosis alone was present: W. R. was feebly positive in five cases but was always associated with one of the other reactions. Of the 18 cases in which nervous symptoms were present, nine had not received any antisyphilitic treatment and in the others, the treatment had been very incomplete. Nonne's reaction was positive in all; lymphocytosis was absent in six and present in the rest. The W. R. was negative in the blood in four cases and in the cerebrospinal fluid in 8.

Vernes Method for Serum Diagnosis of Syphilis

D. M. O. Robinson (*Ann. Med.* 1, 2, 289, July, 1920), notes that Vernes found that a metallic or an organic colloidal suspension in distilled water or water containing certain electrolytes in varying concentrations is flocculated when mixed with blood serum. This flocculation occurs with a definite rhythm, which varies according to the quantities of serum added. There is a zone of flocculation with certain quantities of human serum alternated with a zone of non-flocculation and one obtains a characteristic picture of interposed zones of flocculation and non-flocculation. This phenomenon ceases to take place when the quantities of serum become too minute to produce any effect upon the equilibrium of the colloidal suspension. Vernes observed this phenomenon first with a colloidal iron suspension of certain concentrations and

then with several other inorganic colloids, as well as with those of an organic nature. When these colloidal suspensions were mixed with normal human serum the flocculation did not occur in the same quantities as it did when the suspensions were mixed with the serum from a syphilitic person, i.e., the flocculation zone with normal serum did not occur with the same quantities as it did with syphilitic serum.

Realizing this fact, Vernes proposed a method by which the normal serum could be differentiated from that of a syphilitic. His method consisted of employing such quantities of serum as those which produced a flocculation of colloidal suspension with syphilitic serum only. By using certain quantities in human serum can, of course, induce the same phenomenon but this is avoided by a careful selection of quantities than which no non-syphilitic serum can cause a flocculation.

Sachs-Georgi Reaction

K. Dekenga and H. J. M. Platenga (*Ned. Tijd. v. Gen.*, May 8, 1920), made comparative observations on the W. R. and Sachs-Georgi reaction and as the result of the examination of several hundred serums have come to the following conclusions:

In serums with a decided positive W.R. the S.G. reaction was also positive as a rule, but occasionally exceptions occurred. In serum with a weakly positive W.R. and S.G. reaction was repeatedly negative, while the opposite condition—a negative Wassermann and a positive Sachs-Georgi—was also sometimes met with. It seems that as a result of treatment the Sachs-Georgi reaction becomes negative more rapidly than the W.R. It is therefore, not yet justifiable to trust the S.G. reaction alone, though it is of value if carried out in association with the W.R.

Seven hundred serums were tested by Taylor, (*China Med. J.*, p. 344, 1922), by the Sachs-Georgi test. There was 92.2 per cent. correspondence with the Wassermann test. The Sachs-Georgi test, performed with an extract of the heart of the black pig common to North China, is considered a reliable test for syphilis. The test is simple, cheap and specific.

Sigma Reaction for Syphilis

The sigma reaction for syphilis described by Dyer and Ward (*Lancet*, p. 956, 1921), is much simpler in technic than is the W.R.

The results of the series reported would seem to show that the results as regards blood serum tests in untreated cases are as good or even slightly better than the results obtained by the W.R. when judged from a clinical standpoint.

The results obtained in the cerebrospinal fluid have not been so good as have results of the W.R. These cases are, however, so few that it is impossible to draw any inference from them.

The test is easily standardizable as regards technic and reporting of results.

Being a quantitative reaction, it is possible that important information as to prognosis or the effect of treatment may result in the light of further knowledge.

Sero-Diagnosis: Role of Albumins and Globulins

Felke (*Immun.*, 32, 137, 53, 1921), says the albumin fractions of luetic sera are able to produce precipitates in the Sachs-Georgi reaction. This is a confirmation of the work of Mandelbaum, Gloor and Klinger. It was further shown that in the reaction between W. ext. and active luetic serum the complement middle-piece as well as the end-piece disappears. It is possible to obtain reactions with the split albumin and globulin fractions, which are albumin end-piece and globulin middle-piece, reactions depending upon changes in the fractions derived from luetic serum under the influence of W. extracts.

The Use of Mercury by Inhalation

The use of mercury by inhalation is disparaged in the report of Cole, Gericke and Sollmann, (*Arch. Derm. & Syph.*, Jan., 1922). They observe that it has no advantage over oral administration and has the serious disadvantages of indefinite dose and of the special danger of respiratory irritation.

Pontoppiban (*Ugesflaeger*, Jan. 12, 1922), notes his method of injecting *calomel* intramuscularly. He suspends calomel in cocoa butter, each 15 cg. of which 5 cg. of calomel. They are made in the form of rods to fit into a 1 cc. Record syringe which is gently warmed until the contents melt.

Quinin Salve Prophylaxis of Syphilis

Schereschewsky (*Berl. Klin. Woch.*), has demonstrated by experiment that apes are protected against exprimental syphilis by using quinin salve. It also proved efficacious in the Army.

Biological Activation of Salvarsan Injections

Koetschau (*Deut. Med. Woch.*, No. 31, 1922), concludes that it is possible to increase the effect of salvarsan by activating bodies (Hg, Ag, Casein and others). The salvarsan effect will only remain fully favorable if these bodies are constantly changed.

Elimination of the Arsenicals in Urine

Beeson & Albrecht (*Arch. Derm. & Syph.*, Jan., 1922), utilizing a slight modification of Almen's test for the presence in the urine of arsphenamin or its derivatives, found that in the study of 50 cases in which they were given intravenously, it was practically eliminated within 24 hours. Tertiary and neurosyphilis showed delayed elimination.

Raynaud's Disease and Syphilis

Ghelfi (*La Rif. Med.*, Feb. 12, 1921), has seen two cases which seemed of syphilitic origin.

Syphilitic Mastitis

Burnier (*Par. Med.*, April 9, 1921), believes it is more frequent than generally supposed. It may develop in all stages of acquired syphilis and even in inherited disease. He has collected nine cases occurring in early secondary; eight in late secondary; ten in tertiary, and three in inherited. It gives two distinct clinical forms: an infiltration affecting one or more lobes of the gland, and the breast is enlarged to two or three times its normal size with the swelling from that of a hazel-nut to an orange. In the other cases there are distinct circumscribed nodules six or eight in number, but sometimes singly. The mastitis may assume an acute course and end in suppuration but usually becomes absorbed as a result of specific treatment.

Fever in Syphilis

Chiray and Coury (*Presse Med., Dec.* 28, 1921), comment on the frequent exception to the rule that syphilis runs its entire course without fever. They add that both arsenic and mercury tend to reduce the temperature of the body. Fever during neoarsphenamin treatment has never been observed, they continue, except in the syphilitic or with a trypanosomiasis, and a meningeal reaction to this drug is common in the syphilitic and is never noted in nonsyphilitics. Their experiments confirm the belief that syphilis at any stage may develop fever.

(*Concluded on page* 3)

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The Case for Meat

The pendulum which registers meat consumption has swung all the way from Liebig's extreme position as a partisan of protein, in the nineteenth century, to Chittenden's equally extreme position as a prophet crying out warnings against what he regarded as protein excess, in the early twentieth century. For that consumption has unquestionably been largely determined in degree by the researches and advice of our great physiological chemists.

Strategically, one might say, the physiological chemists of today are in an excellent position to approximate dietetic truth in the interest of the people, for out of the long experience of the race, and new knowledge, and controversy as well, is emerging rational understanding of a vital problem, that concerning the proper place of meat in the dietary.

It is well that our scientists are in a position to tell the people with certainty what to eat, and how much, since the days of abundance are fast coming to an end. We are leaving behind us the happy days when, as Harrow of Columbia University puts it, we managed to get what we needed without really knowing the precise content of our food, having but little fear of malnutrition so long as we had food in variety and abundance. Survival, let alone success, is becoming more difficult. He who can bring to the food problem knowledge in place of guesswork has an immense advantage over his fellows. The real need of the times, however, is a diffusion of such knowledge, not a selfish utilization of it. Enlightened self-interest demands an informed public, not, as in Russia, a people frequently stricken by famine because first stricken by ignorance.

There is no food which more closely resembles our tissues than the meat of animals, nor from which greater amounts of nourishing protein can be so easily digested, absorbed and utilized by healthy and active people. Moreover, the presence in meat of certain very palatable flavoring substances assists digestion and promotes the general health.

It is indisputable that the meat-eating peoples of the world have accomplished vastly more in the way of creative work than those whose dietetic life has been chiefly vegetarian. The great meat consumers have ranked first in the fields of initiative, knowledge, invention and physical prowess. Racial superiority appears to be in the main a matter of high consumption of animal protein.

Foods containing sufficient animal protein are essential for notable intellectual and physical attainments. Their adequate use must be insisted upon, in the interest of the welfare of the people, with all the means at our command.

Upon the nutrition of the nervous system hangs the social destiny of a people. Meat introduces substances which are indispensable for the building up and maintenance of the central nervous system, namely, phosphorus and lecithin. The ashes of meat contain 42.50 per cent of phosphorus.

The carriers of the life process, the cell-nuclei, are best restored by a meat diet. From no food, least of all vegetable food, can nuclein be so quickly absorbed as from meat. Nuclein forms a basic portion of the cell-nuclei, being set free from their nucleoproteins in the process of digestion. Nuclein is probably the most important single substance in our bodies. The white blood-corpuscles may contain as high as 77 per cent of nucleoproteins in their dry substance. Moreover, those specialized cells upon which the very propagation of mankind depends consist largely of nucleoproteins.

The brain and the glands of internal secretion (the ductless glands) consist largely of nucleins. The experiments of Jebbink, working in Professor Salter's Institute of Chemistry in Amsterdam, showed undisputably that the nucleins are best built up from nucleins derived from animal food. The idea that the proteins derived from vegetable sources may be safely substituted for those obtained from animal food is not tenable, if the work of Fischer, Abderhalden, Osborne and Clapp means anything at all. Animal protein is by all odds better adapted to serve the required purpose, because of its close correspondence in composition to our own body cells. In brief, our sagacious cells deliberately give animal protein the preference. This, obviously, is a physiologic rule of reason.

Man is an omnivorous animal. The structure and character of his teeth, and his anatomy in general, prove that meat has played a great part in his evolution. He is a predestined meat eater by heredity and through environment. When he fails to eat meat definite stigmata make their appearance. There is no accident in the fact that meat is a staple article of diet amongst almost all the highly ranking nations. There is a deep meaning in the addition of a generous meat ration to the inadequate dietary of the Japanese army; in the light of the facts that since its adoption the average soldier has gained two inches in height and increased vastly in efficiency. Here is evolution taking place before our eyes. Not to maintain our own stature would argue decadence and eclipse, for nothing is better established than the relation of meat eating to stature, and of stature to racial dominance. Surely the nations of the West must not live so as to forfeit their future place in history to other breeds of men.

Diet reacts upon the ethnical makeup of a people in the most marked manner. The size and efficiency of man's body are greatly influenced by the kind and amount of food that he eats. The nations which con-

sume large amounts of animal protein such as fresh fish and meat, for example the Scandinavians, attain to unusual physical development. Primitive tribes possessing vast herds and rich pasture lands are always distinguished for their physique and particularly for their height, for example, the Watussi tribe, in Africa.

When Sir Henry Head was exploring the pampas on horseback he used to live entirely, for weeks at a time, on meat and water, and he declared that never in his life had he felt so fresh and well. We daresay that a pioneer like Daniel Boone often duplicated this experience; it doubtless accounted, in part, for the initiative, the calm courage, and the perfect control of the senses that we associate with such a character. General Gorgas showed his genius in the achieving of results when he turned his Negroes into good workers by simply feeding them meat.

Meat eating accounts for the fine physical types in any community. In contrast to the stunted plebeians of Europe stand the tall patricians.

Meat in the diet stimulates the thyroid gland to normal activity. This fact has been established by the experiments of Briesacher and Blum, and serves to explain the relation of meat consumption to stature. It is through its influence over the pituitary gland that the thyroid influences growth.

The increased activity of the thyroid gland brought about by a meat diet furnishes a protective influence against infectious diseases, such as tuberculosis. Richet and Briesacher have shown that meat and its extractives possess a special efficacy in the prevention of the great white plague.

Von Noorden has pointed out that the dietary habits of people are the result of biological laws, and that these laws have resulted in the establishment of suitable habits regarding the amount of protein consumed; judging from the data gathered by Voit, showing that protein ought to contribute at least 16 per cent of the total fuel value of our food, he associates a smaller consumption than this with weak individuals or inactive peoples. "A liberal protein consumption," he says, "makes for a full development of the man. A single individual may for years, or even decades, offend against this biological law unpunished. When, however, the small consumption of protein continues for generations, there results a weak race."

Benedict concedes that men may for months reduce the proportion of protein in their diet very markedly and *apparently* suffer no deleterious consequences, but thinks that such a possible adjustment is no logical argument for the permanent reduction of the nitrogen in food for the period of a lifetime. "Dietary studies," he says, "all over the world show that in those communities where productive power, enterprise, and civilization are at their highest, man has instinctively and independently selected liberal rather than small quantities of protein."

Meltzer compares a man trying to live perilously on a small amount of protein to an individual with one kidney, or to a person residing where the atmospheric oxygen is reduced to one half. Of course such experimenters may get along after a fashion, but who would think such conditions ideal? Meltzer thought that a liberal allowance of protein was like an extra beam in the support of a building or a bridge—a factor of safety.

During the war the nutrition of the Danish people was looked after by Dr. Hindhede. The fact that they showed a phenomenally low mortality was not due to their low protein diet but to the decreased alcohol consumption.

The reasons why the diet must contain a very liberal allowance of protein have been very well set forth by Harrow, of Columbia University, who acknowledges the influence of Emil Fischer. Proteins are made up of chemical units just as words are made up of letters. These chemical units are known as amino-acids. When the protein which largely makes up meat is eaten, the digestive juices break it up into its amino-acids. This step is a necessary preliminary to absorption and assimilation, as protein cannot be absorbed as such. Protein introduced directly into the blood acts like a poison, whereas the amino-acids may be so introduced with impunity. The stomach and the small intestine may be regarded as factories in which protein is prepared for tissue building. In the cells of the body the process just described is reversed, that is, instead of the breaking down of protein into amino-acids, the latter are joined together to form again the proteins of which our tissues are so largely composed.

Just as the same letters will give you different words, according to the arrangement of the letters, and just as the same bricks will give you different houses, depending upon the arrangement of the bricks, so the eighteen known amino-acids will give you different proteins, according to how they are arranged, and according to tissue requirements. In order to construct tissue protein, the body cells select those amino-acids they need and discard the rest.

Is it not, then, obvious that the human organism must be presented with a liberal allowance of protein food in order that the cells of the body may exercise their function of selecting the particular amino-acids they need for tissue-upbuilding and repair? So vital is this necessity that Harrow states that in case of deficiency in the amino-acids known as lysine and tryptophane, life is impossible.

In fairly normal times the average American family spends instinctively from 30 to 40 per cent of its total budget for protein food. Some people are eating less meat at the present time than they should because they feel that they cannot afford the high-priced cuts, but it ought to be made plain that even a greater amount of nourishment can be secured from the less expensive cuts, if properly cooked.

Goldberger and Tanner (*J. A. M. A.*, Dec. 23, 1922) think that an amino-acid deficiency, in other words a protein deficiency, is probably the primary etiologic factor in pellagra.

Many arthritic conditions long associated with the eating of meat are now known to be due to carbohydrate excess.

Since meat has an especially stimulating influence leading to the abundant secretion of hydrochloric acid, and since this acidity serves to inhibit the growth of infectious organisms gaining access to the stomach, resistance to infection by way of the ailmentary tract ought to be measurably fortified by meat eating.

So far as putrefactive factors have to be considered in connection with meat eating it was recently pointed out in a discussion reported in the *Journal of the American Medical Association* that healthy man has in the course of the ages developed a special resistance to toxic influences emanating from this source.

One word more as to the influence of meat eating upon height. W. T. Porter (*Amer. Jour. Physiology*, July, 1922), proclaims the doctrine of securing the inches in healthy children. It is our duty, he says, to make our children reasonably tall. Again and again it has been proved that life is more difficult for undersized men and women than for those who are somewhat taller than the average. Porter is not making a special plea for meat eating, but without a generous ration of animal protein his ideal is unattainable.

What we have had to say on this subject relates to the human being who is well. The meat problems of the ill are another story.

Beekman Street Hospital Again in the Limelight

The Beekman Street Hospital, Beekman and Water Streets, New York, which has been in the public eye considerably in the last few months, is again in the spotlight.

The latest move is the discharge of the entire medical board, a number of the members of which had been with the hospital for many years.

This institution, known for a long time as the Volunteer Hospital, came under a new management last spring. The first newspaper publicity attending the change had to do with the strike of the nurses, when the entire nursing staff, with one or two exceptions, quit, almost without notice, on account of a grievance which seemed to the nurses to justify such drastic action. Not long after that a sensational story was published in some of the newspapers to the effect that the new woman superintendent of the Beekman Street Hospital had been blackjacked in the hospital and the injuries she received compelled her to lay up for several weeks. This was supposed to have been the work of a discharged employee.

In the autumn the hospital, being very heavily in debt, instituted a drive for the purpose of raising $250,000 to pay the indebtedness and give the institution a little working capital. The drive was a lamentable failure. One of the board of directors cancelled a $30,000 indebtedness he had against the hospital and in all the downtown section only $35,000 additional was forthcoming.

Many business men in the downtown section of the city feel that only one hospital is needed in that section and, consequently, have thrown their influence and have given their money to the Broad Street Hospital, which is a large, splendidly equipped and thoroughly managed institution. In the opinion of these men, the Broad Street and the Beekman Street Hospital should consolidate.

It seemed to be the consensus among those in charge of the institution that a new medical board would be of material aid in getting more money for the payment of the debt and, consequently, the old board was notified that its services would be dispensed with on January 1, 1923. Dr. John J. Moorhead, of 115 East 64th Street thereupon got together a new medical board which is now functioning. Most of its members are said to be connected with the New York Post Graduate Hospital. The members of the new medical staff may be able to bring into the coffers of the hospital the money necessary to keep it from closing its doors.

The discharge of a medical board in this day and generation is a very novel as well as drastic affair, but it demonstrates what commercialism will do when it mixes with scientific medicine.

Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

Medicine, a New Autocracy?

In the preceding article I described the wide-spread movement towards prolonged medical training and the reasons alleged in its favor. In the present I shall point out the danger to the public and the profession in the creation of a medical autocracy should this movement be unduly promoted.

It is a question if a fourth year, or even a third year of obligatory premedical training is justifiable. Of course, it is desirable that only the finest type of men, men of wide sympathies, of high ethical ideals, enter the profession, and selection should therefore be severe. Yet even the present training of six or seven years offers certain objections that would be emphasized if the period were extended still further. Briefly, these objections are as follows:

1. The long training period tends to establish a money aristocracy. Only the student with considerable means or considerable earning capacity can hope to furnish the funds required. The moneyed student is thus favored, while the student lacking the funds, or the opportunity to earn them, is very seriously handicapped. The longer the training period the greater this handicap. Parenthetically, the moneyed student usually evinces the very human tendency of "showing off" his money, making the poorer student envious, and perhaps making him believe that the primal aim of the medical profession is the accumulation of money, and not the alleviation of pain and the healing of wounds.

2. The long program stresses purely the intellectual attainments and ignores the moral and ethical phases. Yet it is known that a man may be mentally an intellectual giant, but morally a blackguard; mentally an encyclopedia of facts, yet an utter failure in the practise of his profession. It is desirable that more attention be given to the character of the student. The present criterion of ethical standards reads "high grade."

3. The training period is unduly prolonged, and the mortality terrific. The percentage of "flunked" or merely "dropped" students in the first and second medical years is large, but smaller for the third and fourth years. Yet even in a "six year curriculum" it means that the dropped student has the equivalent of an average university education behind him. Unfortunately, this education is not of a sufficiently generalized type to permit him to enter some other profession, say law, teaching, engineering, etc. On the contrary, even the premedical work is distinctly of a specialized nature, the course having been selected purely with the idea of fitting the student to take up the advanced phases in the medical school proper. The premedical courses are prescribed as so many credits of chemistry, so many of zoology, physics, English, languages, etc. In view of this the student is required to specialize from the very beginning. If he is dropped in the third or fourth year of his work, the result is calamitous. Such a student must practically begin where the ordinary freshman begins.

4. Even for the survivors the trials are not ended. Suppose the training is at last completed, and the young physician opens up an office. He enters his practise at an age when most men have been established for some years. And before him he has several difficult and expensive years till he knows if he will succeed or fail.

5. To repay the investment in time and money, fees must be raised to an extent where only the wealthy can afford medical advice. The physician has every right to realize on his investment; but if he must raise his fees because his investment was so very large, the purpose of the profession is lost. Right now in country places, the fees for "out of town" calls are exceedingly high; country people therefore call the physician only *in extremis*, too frequently when the case is well advanced, or perhaps entirely too late. In such circumstances the development of the most promising field of medicine, namely preventive medicine, is hindered.

6. In his practise the moneyed physician feels little

incentive to exert himself in the service of his fellowman. On the contrary, the man with humble beginnings brings to his work "the urge to make good;" by virtue of his simple early associations he brings with him a more sympathetic understanding of the struggles and trials of the poor, or at least less moneyed folk. He has been trained in bitter realities, not in the misleading comforts of a wealthy life.

7. Finally, it is a deplorable fact that the medical profession constitutes the most conceited class of men in the world. This conceit is in proportion to the length of training the individual has undergone. Very many causes have contributed and continue to contribute to this arrogance. First, there is the length of training and the expense it entails. Secondly, the training is so variegated, it touches such a tremendous variety of topics, taking the cream from each, that the student finally gains the idea that he has exhausted the field of knowledge. Besides this, consider the fact that he is, so to speak, to be "the master of life and death." And finally he is constantly called upon for opinions and advice on the multitude of topics which really require an encyclopedic knowledge. To be sure, he is a superior person, the elite of the civic body. He knows that too well. For has he not survived six to eight years of the most intensive training? It seems unnecessary to increase this megalomania by making the disparity between this training and that for other professions still more pronounced.

The prospect of prolonged training with its accompanying expenditures discourages many of the most promising students. I am personally acquainted with an indefinite number, of whom many were admirable types, students of fine character and mentality, students whom I tried to encourage to continue despite obstacles. In nine cases out of ten, money is the factor that makes students change, money and the prospect of long deferred returns. The tenth case is the student of average mentality, good character, who fears to lose out in the struggle for place because he realizes that he is only an average student. A prolongation of the course of studies means that every one of the objectionable conditions listed will be aggravated to an extent where all but the moneyed student will be barred.

R. D. St. Denis,
in *America*, Oct. 18, 1922.

My Appendicitis Mistakes

(Concluded from page 37)

tive tissue contraction. The largest number of mistakes was made in connection with removal of appendices which were simply congested along with congestion of other viscera in some phases of enteroptosis. Here is where unsatisfactory appendicitis cases made their appearance on the whole. At that time we did not have or at least I did not have good methods of diagnosis for chronic appendicitis even along lines of "method of exclusion." Later on it was observed that a new point in diagnosis relating to chronic appendicitis was quite as valuable as was McBurney's point in the acute cases. In chronic appendicitis the constant nagging finally seems to result in chronic hyperesthesia of the second and third sympathetic lumbar ganglia of the right side, known by anatomists as the fused ganglion. Deep pressure upon the abdominal wall about an inch and a half to the right of the navel and a trifle below brought out the special tenderness of the fused ganglion of that side. This point in diagnosis of chronic appendicitis became extremely valuable for differential purposes. (It does not belong to acute appendicitis.) Another diagnostic point nearly as important consisted of a chronic distension of the ascending colon with gas. This appeared to be due to the tiring out or wearying of the innervation of the cecum and ascending colon following the constant nagging of an irritating appendix, an appendix representing an irritative lesion rather than an infective one. This permanent distension of the ascending colon gave a percussion note that I call the cider barrel sign. The reason for giving it that name was that percussion upon the left side of the abdomen usualy gave a normal resonance suggestive of the cider barrel in October, while percussion upon the right side of the abdomen gave a note suggestive of the cider barrel in March.

Armed with these two factors in diagnosis, the point of hyperesthesia of the fused ganglion of the right side, and the cider barrel sign, it became possible to rule out all sorts of confusing conditions which had previously led to the making of mistakes in diagnosis of chronic appendicitis. A rapid accumulation of knowledge made by many authorities on the subject of vagotonia and various phases of enteroptosis allowed me to avoid operation and to advise medical treatment in many cases in which I had formerly operated for chronic appendicitis.
114 East 54th St.

The Phosphatic Index

(Concluded from page 39)

nutrition, there is always a resulting indigestion and defective assimilation, thus another cause is added to the already existing insufficient supply of nutrition.

In this connection it may be safely stated: in nerve-cell hunger, the digestive system suffers first, in fact, about 90 per cent of stomach and intestinal ailments are due to interference with the power that controls this function, and are due mainly to insufficient nourishment in the cells.

The following case must show what ease a normal, or practically normal condition can be brought about by discovering the true cause:

Mrs. B., age 58. Slight noises in the head, which gradually became worse until there was a constant roar, as of "running water," as she described it. The cause was given as bad teeth, and all but two were removed. Her own statement was, "I got no improvement, in fact, I think I am worse." On seeing her in consultation, I found her in bed, where she had been for some time and her symptoms had increased to a state that she was bordering on melancholia. She complained as soon as she closed her eyes, the bed seemed to float around; she could scarcely walk, she was so dizzy; no appetite, and what she did eat caused a most distressing accumulation of gas. Insomnia was marked, she could sleep but a few minutes at a time; her bowels were very caustitve and she had a profuse leucorrhea. No evidence of any pathological condition was present; no albumin, sugar or casts, but a Phos. Index 60% plus (solid). The following was ordered: caroid, grs. 1 (for the artificial digestion of all food), sodium bromid, grs. 15, in the elixir val. of ammo., one drachm in water after meals. Three doses gave her at least 50% relief, and at the end of a week she was up and about all day; no noise in head; no movement of bed; she could sleep two or three hours at a time; the gas formation had entirely ceased.

An index was taken at the end of ten days, and found 50% minus. It was evident that excessive nerve metabolism had been controlled, and the reserve was depleted 50%. At this time she was placed on a mixture of Fl. Ex. valerian, gtts. 15, caroid gr. 1 (it was best to continue artificial digestion until new teeth were supplied) in Comp. Phos. Mixture, gtts. 30, three times a day in milk after meals.

The improvement was rapid; taking into consideration her age, and the fact that she was the mother of six children, she was as near normal as it would be possible to find such a person.

The following case (a condition that is of a neurlagic nature and very commonly met with), must show the ease with which relief can be obtained when the true cause is found:

Mrs. E. For six weeks severe pain in right sciatic nerve (sciatica); it was very marked at night. Constant treatment with aspirin, etc., gave no relief.

In consultation, I found no pathological condition, no excess of uric acid, no apparent pressure on the nerve; an index was made, being 60% plus, solid. A similar mixture of sodium bromid in the elixir vaerianate of ammonia was ordered to be taken three or four times daily. She reported at the end of ten days, saying, "No pain since the third or fourth day, was feeling well, but very weak."

At this time another index was made, being 80% minus, with crystals showing great nerve cell starvation. A mixture of fl. ext. valerian, gtts. 10 in phosphorus mixture, gtts. 30, was ordered to be taken three times daily. Six weeks afterwards the lady reported the pain had never returned, and that she was feeling fine.

This woman has been advised to have her tonsils removed; the result that she would have obtained from such an operation is quite clear.

437 Franklin Street.

Better Eyes Make Better School Children

(Concluded from page 41)

I wish to quote in conclusive from the *Weekly Bulletin* of the Department of Health for Dec. 23, 1922, some statements written by Dr. M. B. Beals, Supervising Oculist of the Children's Eye Clinics, which he says:

"In the control of patients, the far-reaching powers of the Department of Health, combined with the hearty cooperation of the Department of Education, the Police Department, and of the large number of social and charitable organizations interested in this work, form a chain, some link of which is always in touch with the child, whether he be in school, at home or a truant on the street, thus securing the continuous treatment which could not be accomplished by other clinics.

"One of the ten Department of Health eye clinics is maintained especially as a Sight Conservation Clinic, cooperating with the sight conservation classes in the public schools.

"An example of what we do in this field of defective vision in school children recently walked into this Sight Conservation Clinic at Public School 30: A boy twelve years of age, in an ungraded class. Has eyes of perfect appearance. Has never had glasses. Sent to us as the result of our system of 'combing' schools for candidates for sight conservation classes. This boy had been 'sentenced' to an ungraded class because of supposed defective mentality. It is found that he has a vision of 20/70 with both eyes, and that he is suffering from a most excessive amount of astigmatism, running in one eye to over eight diopters. The glasses he has just brought in for inspection, prescribed here a few days ago, give him a vision of 20/20 with both eyes. He will now be placed in a sight conservation class, and in a few months will be up to his grade for age, thus changed from practically an idiot, so far as the public schools are concerned, to a normal child.

"Another case has just come in, brought by the visiting teacher of the Borough of Brooklyn. The case is a girl, twelve years old, in the 2B grade. Has corneal opacities in both eyes, anterior polar cataract in the right eye. Strabismus convergent, and rotary nystagmus, and a high degree of compound hyperopic astigmatism and a vision of O. U. 20/200. Has been taken to several eye clinics and the mother says that she was told nothing could be done. It may or may not be true that she was told this, but nothing had been done (for the child, and probably nothing would have been done as the condition had existed for about eleven years without effective treatment) but for the Sight Conservation Clinic of the Bureau of Child Hygiene, and the co-operation of the Department of Education. There is much to be done for this child. The proper glass will improve the vision, as far as the corneal opacities will permit, and the negative galvanic treatment will slowly but surely, absorb the corneal opacities, and in a year or two this child will get a practical amount of vision, which she has not now, and never would have were it not for this work."

Progress in Syphilis

(Concluded from page 48)

Syphilis of the Prostate

A. S. Warthin (*Am. J. Syph.*, p. 409, 1921), gives details of a postmortem examination in a man dying from fractured base two years after contracting syphilis in which syphilis of the prostate was found. During life no symptoms pointed to a prostatic infection. Warthin claims this case to be the only one in which syphilis of the prostate has been absolutely demonstrated.

Acquired Syphilis Without Chancre

Gougerot (*Bull. et mem. Soc. med. d. hop. de Par.*, p. 1522, 1921), discusses the question of acquired syphilis without chancre and gives details of two cases in which no evidence of a primary chancre was found. In the first case the first lesion observed was a suppurating bubo resembling chancroidal bubo. Examination for Ducrey's bacillus, however, was negative, both microscopically and by culture autoinoculation was also negative. A few s. pallidae were found in serum from the glands. The W.R. became positive 30 days after the appearance of the bubo and secondary syphilis followed. The bubo appeared 29 days after coitus with a woman infected with secondary syphilis, no chancre being discovered. In the second case the first sign was a typical indurated inguinal adenitis. No chancre was found on the genitals or anus. The adenitis appeared one month after coitus with a woman suspected of syphilis. S. pallida was found by gland puncture and secondary syphilis developed two months later. Gougerot concludes that syphilis may begin without a chancre either as an indurated or a suppurating bubo and advises that all such cases should be examined for s. pallidae by gland puncture and by repeated Wassermann tests.

Laboratory Findings in Early and Late Syphilis

Fordyce and Rosen (*J.A.M.A.*, Nov. 26, 1921), found that approximately 38 per cent. of secondary syphilitic patients seen by them showed positive spinal fluid findings and over 50 percent. if tertiary syphilitics. They believe that from 25 to 30 percent. of patients with secondary syphilis will show abnormal spinal fluid changes and the incidence to nervous system involvement is found to be higher in men than in women. They stress the importance of routine spinal fluid examination and, when necessary, early treatment. They say "we are satisfied that the syphilitic patient's future depends on the thoroughness with which his case is supervised in the early months."

Treatment of Cases Having Persistent Positive Wassermann Reaction

Marshall and Shera (*Lancet*, p. 1299, 1921), answer the question often asked by physicians. They consider that a persistent positive W.R. is not by itself sufficient evidence to decide the question of further treatment. They feel we should be guided equally by the clinical progress of the case, the nature of the former symptoms and the intensity and duration of previous treatment. If clinical symptoms have been present for say twelve months they hold that further treatment is advisable; if symptoms have been present for more than a year,

that the advisability or not of further treatment should depend chiefly upon the clinical course. If further treatment is decided upon they believe it should differ materially from that given previously. They suggest that sulphur should form a part of this treatment, without venturing any hypothesis to explain its possible action.

It has been the writer's observation that if cases with a persistent positive Wassermann have been treated with arsphenamin it is advisable to switch these patients either to neoarsphenamin or silver-arsphenamin or to alternating doses of one or the other of these drugs, together with the mercurials and, if indicated, iodin.

Standard of Cure in Syphilis

When are our cases of syphilis cured? This question is most difficult of solution. Fraser, of South Africa (*South African Med. Rec.*, March 25, 1922), in summarizing the present position as regards the cure of syphilis points out the uselessness of a few massive doses of arsenobenzene and confines the value of the W.R. to diagnosis since treatment directed against and controlled by it has misapplied, each case being treated as an individual apart from the Wsasermann reading. Slow and progressive sterilization must be the aim, the treatment being employed with a view to its power of stimulating tissue to defensive activity in addition to its action on the parasite, and such treatment should be carried out every two or three years, irrespective of the W.R.

Since at present a cure can only be regarded as relative, patients should be urged to undergo periodic courses of treatment for the rest of their lives if later manifestations are to be successfully prevented. After adequate treatment over a period of two or three years, marriage may be permitted and is not contra-indicated even if the W.R. is positive, the risk to the wife being very slight, provided no late lesions arise. In the event of a married man contracting the disease, pregnancy should be avoided until cure has been effected but, in the event of its occurrence, the wife should have extensive treatment throughout the pregnancy and the child be treated for three years whether symptoms are present or absent, it being borne in mind that the W.R. in infants is unreliable as a guide. The same rule applies to the marriage of syphilitic women as to men, further treatment being given throughout each gestation and to the children from birth since, however completely treated, a syphilitic woman is always liable to give birth to an infected child.

16 Fifth Ave.

The Physician's Library

Diseases of the Eye, by George E. deSchweinitz, M.D., LL.D., Professor of Ophthalmology in the University of Pennsylvania. Ninth Edition. 832 pages with 415 text-illustrations and 7 colored plates. Philadelphia and London: W. B. Saunders Company, 1921.

It is difficult to review a book which has for so many years been hailed as the outstanding work of its kind in the English language. Since 1892 this treatise has been regarded by many as the ophthalmological bible and if such a volume can improve with age this one has done so.

The ninth edition takes in very many new topics and the author, who served with distinction in the army during the late war, has enriched it with the lessons learned during combat duty.

This text book will ever rank with the real contributions to the literature of scientific medicine.

Die Experimentelle Bacteriologic und die Infektionskrankheiten, by Dr. W. Kolle, Director of Speyer-Haus, Frankfort, and Dr. H. Hetsch, of Berlin. 2 Volume. Sixth edition. Berlin: Urban & Schwarzenberg, 1923.

The sixth edition is greatly enlarged in text as well as in illustrations, many of which are in colors.

The appearance of this edition so soon after the fifth, which appeared in 1922, is indicative that the Kolle-Hetsch work is regarded as the standard textbook on bacteriology and infectous diseases by the scientist as well as by the practitioner. The type is large, the illustrations of the highest order and the text matter is of the character expected from such distinguished scientists.

Pediatrics, edited by Prof. E. Feer, of Zurich. Translated by Julius P. Sedgwick, M.D., of the University of Minnesota, and Carl A. Scherer, M.D., of Duluth. Cloth. 917 pages. 262 illustrations. Philadelphia and London: J. B. Lppincott Co., 1922.

This is the first American edition of a collaborated work already in its seventh German edition. The European contributors number nine, including Noggerath and V. Pirquet. There are fifteen American collaborators and instead of being pediatrists alone we note the presence of a pathologist, a dermatologist, an anatomist and a research worker in the group. The eleven sections are devoted to diseases of the new born, of the digestive and nervous systems, diseases of the respiratory organs, the heart, the genito-urinary tract, the skin, pathological blood changes, acute infectious diseases, tubrculosis and syphilis, while the supplement is devoted to a further exposition of skin diseases.

An interesting feature, aside from the completeness of the book, is the double authorship. Most sections are written by a foreign observer and editd and revised by an American. In this way the reader has the advantage of a composite of two viewpoints, although there is no way of telling how the American idea is brought out.

The field of pediatrics has been abundantly covered and we doubt not that this encyclopedic work will meet with instant favor.

Preventive Medicine, by J. G. Fitzgerald, M.D., of the University of Toronto. Cloth. 826 pages. St. Louis: C. V. Mosby Co., 1922.

Believing with the New York State Board of Health that "Public Health is purchasable," the author has demonstrated how the proper expenditure of money will prevent disease and lower the death rate. His home city spends 2 per cent. of its revenues for health and the death rate show it.

This book tells the practitioner how to exercise the functions necessary to prevent illness and epidemic. Its methods are sound and the text is so much to the point that no time is wasted in non-essentials.

Fitzgerald has given us one of the most practical books we have seen and one which possesses great value to the potential health officer.

Regional Anesthesia, by Gaston Labat, M.D., Laureate of the Faculty of Science, University of Montpelier; and of the Faculty of Medicine, University of Paris; Formerly Special Lecturer on Regional Anesthesia; The Mayo Foundation. With a foreword by William J. Mayo, M.D. 496 pages with 315 original illustrations. Philadelphia and London: W. B. Saunders Company, 1922.

The many who are familiar with the remarkable work in regional anesthesia by this distinguished Frenchman have expectantly awaited the appearance of his book and they will not be disappointed. We recall no work which has so conclusively stated and proved its case. Despite the carpings of some proponents of general anesthesia, W. J. Mayo, in his foreword, emphatically speaks the truth in his first sentencee, "Regional anesthesia has come to stay."

To be certain in the hands of the inexperienced worker it may prove ineffective, as will any system employed in a bull-in-the-china shop manner. To the careful operator this form of anesthesia, so superior in most ways to the general method, will be *the* practice of the future. Labat's book, backed by his long experience and his careful experimental and surgical procedure, will go far toward putting the method where it rightfully belongs. It is impossible in the circumscribed confines of a book review to show what limitless uses Labat puts novocain. In the language of an enthusiast he permits it "to do everything but sing."

After discussing general subjects and the preparation of novocain solutions Labat plunges into his technic and in the course of the book lays down ways and means for attacking practically every section of the body.

To be sure some laryngologists will look askance at his advice on page 161 to paint the tonsillar region with 10 per cent. cocain in proposed tonsilectomy, as that method is out of date with many of our surgeons, but all in all the technic is one which leaves little to be desired.

We doubt not this book will be laid hold of with avidity and it will be interesting to observe the growth of regional anesthesia during the next decade.

Dr. Labat has recently opened an office in New York City.